NOVEMBER 6, 1961

PURCHASING

THE METHODS AND NEWS MAGAZINE FOR INDUSTRIAL BUYERS

ETHICS:

MORE THAN A PURCHASING PROBLEM

p. 71

A CONOVER-MAST PUBLICATION SEVENTY-FIVE CENTS

TABLE OF CONTENTS...PAGE 5

NEW—TWO LOW-COST MINIATURE BALL BEARING LINES

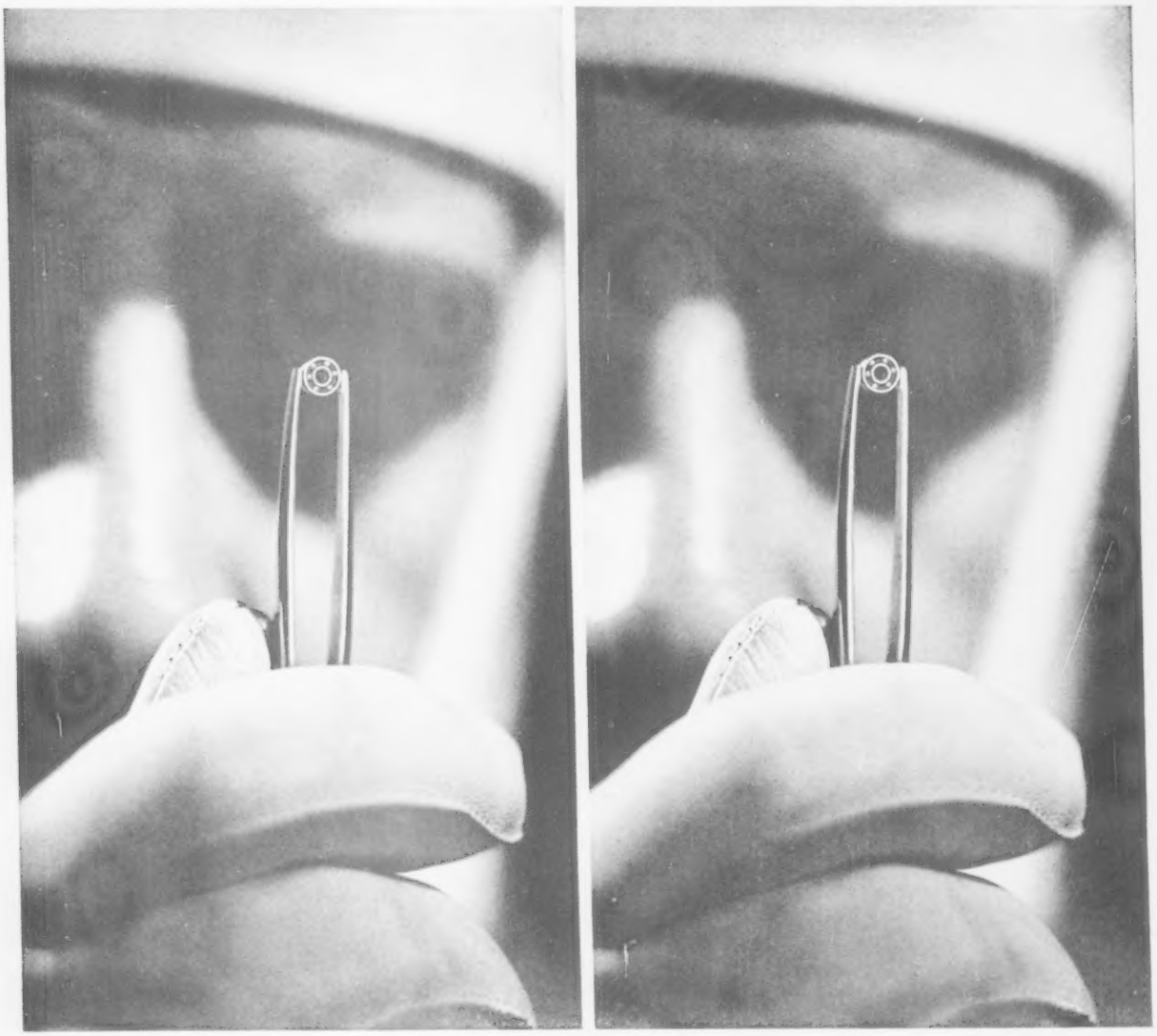
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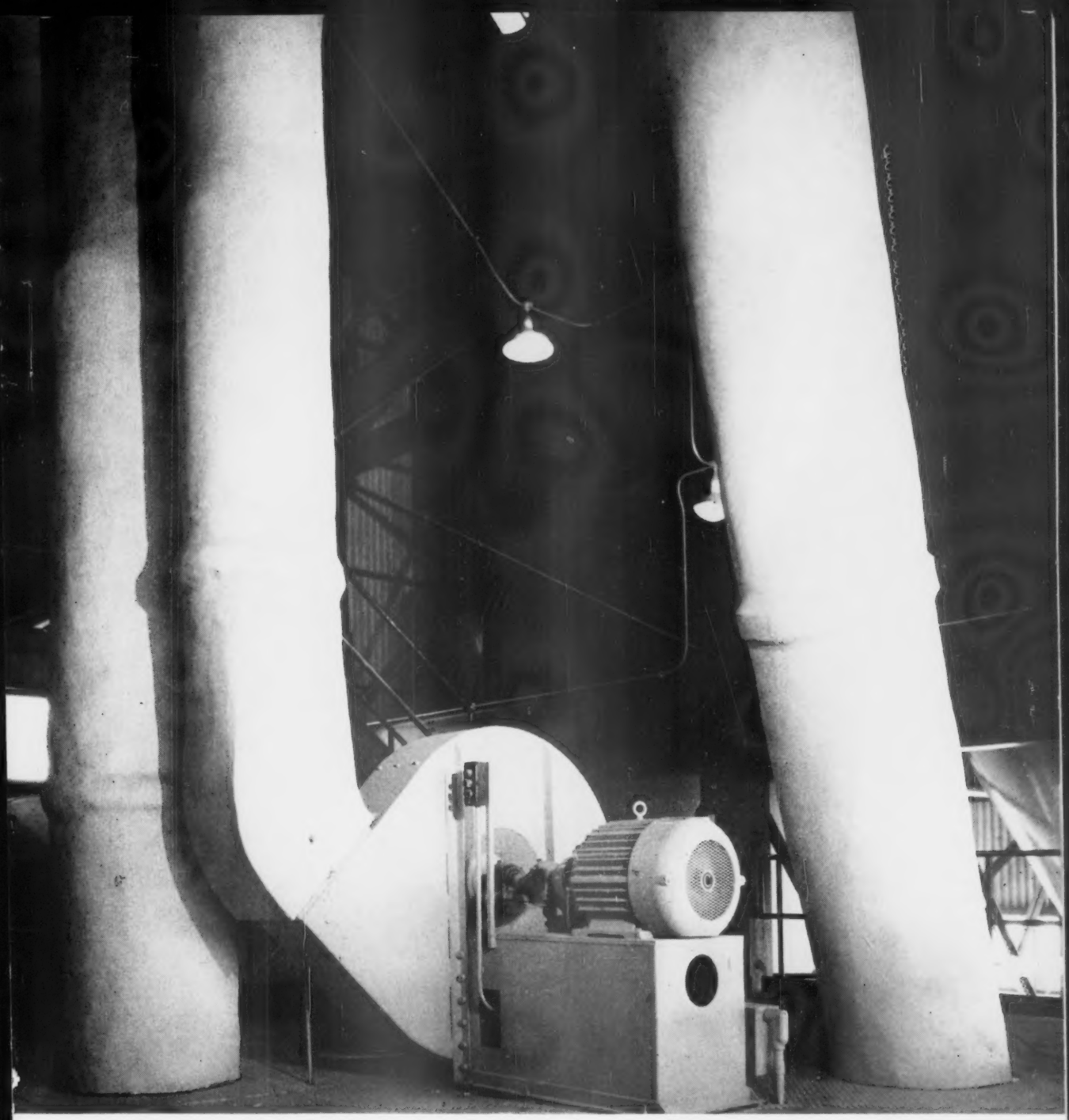
If you are planning a re-evaluation of your miniature bearing applications, it will pay you to consult the N/D Sales Engineer in your area. His assistance may help pave the way to reduced parts cost or enhance the quality of your product. For more information, write for booklet AST, NEW DEPARTURE, DIVISION OF GENERAL MOTORS CORPORATION, BRISTOL, CONN.

*Bearing tolerances as established by the Annular Bearing Engineers Committee of the Anti-Friction Bearing Manufacturers Assoc.



NEW DEPARTURE
MINIATURE AND INSTRUMENT BALL BEARINGS

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Century

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DESIGN NOTE: The Military Ranger used N-A-XTRA 90 (minimum yield strength, 90,000 psi) in bars and plates ranging to 1" thick, in main frame and cross members, loader mechanism and fork carriage. Fabrication followed standard gas cutting and welding procedures. Excellent weldability of N-A-XTRA was important in joining to other steels.

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Great Lakes Steel is a Division of



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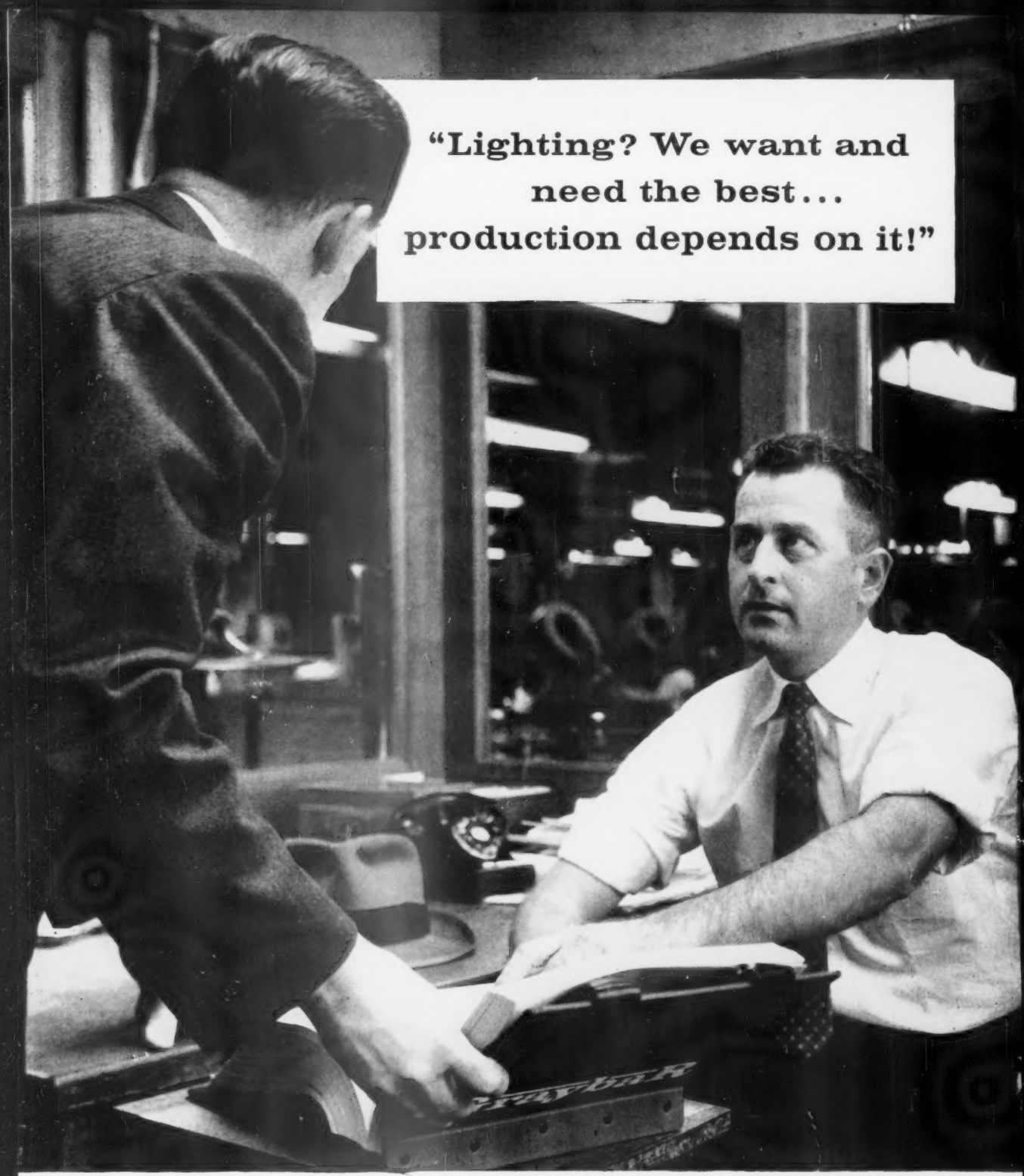
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O'Neal Steel, Inc. Birmingham, Alabama	Salt Lake Hardware Co. Salt Lake City, Utah	A. C. Leslie & Company, Ltd. Montreal, Canada

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NOVEMBER 6, 1961
VOLUME 51, No. 10

PURCHASING

THE METHODS AND NEWS MAGAZINE FOR INDUSTRIAL BUYERS

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Ethics: More Than a Purchasing Problem 71

Business ethics is a particularly sensitive subject for purchasing agents because they are in a highly vulnerable position. This article attempts to analyze the ethical problems that the purchasing executive has to face. Also included are the results of a special survey of 1000 P.A.'s who express their views on business ethics (see p. 73).

What Purchasing Means to Europe 76

During recent trips to Europe, Purchasing Magazine Editor Paul Farrell had a chance to talk with many purchasing executives. In this article he explains the how and why of the marked improvement in West European buying techniques.

Some Tips on Buying Springs 79

Ways to cut costs, how to specify what you want, and a rundown on the types of springs that are available.

Recent Decisions in Purchasing Law 82

Roundup of legal cases of particular interest to P.A.'s.

Forms Forum 84

Two companies submitted sample forms which may help you solve some of your own paperwork problems.

When Does It Pay to Ship by Air Freight Forwarder? 86

There are times when the speed and special services provided by air freight forwarders more than offset the relatively high price you have to pay. (And sometimes it even costs less to use an air freight forwarder than more conventional types of transportation.)

Centralize and Save 89

G. Lloyd Nunnally, director of purchases for the Commonwealth of Virginia, makes a strong case for centralized purchasing. And it's not just talk. He can back up his defense of centralized buying by pointing to impressive cost reductions and a highly efficient purchasing operation.

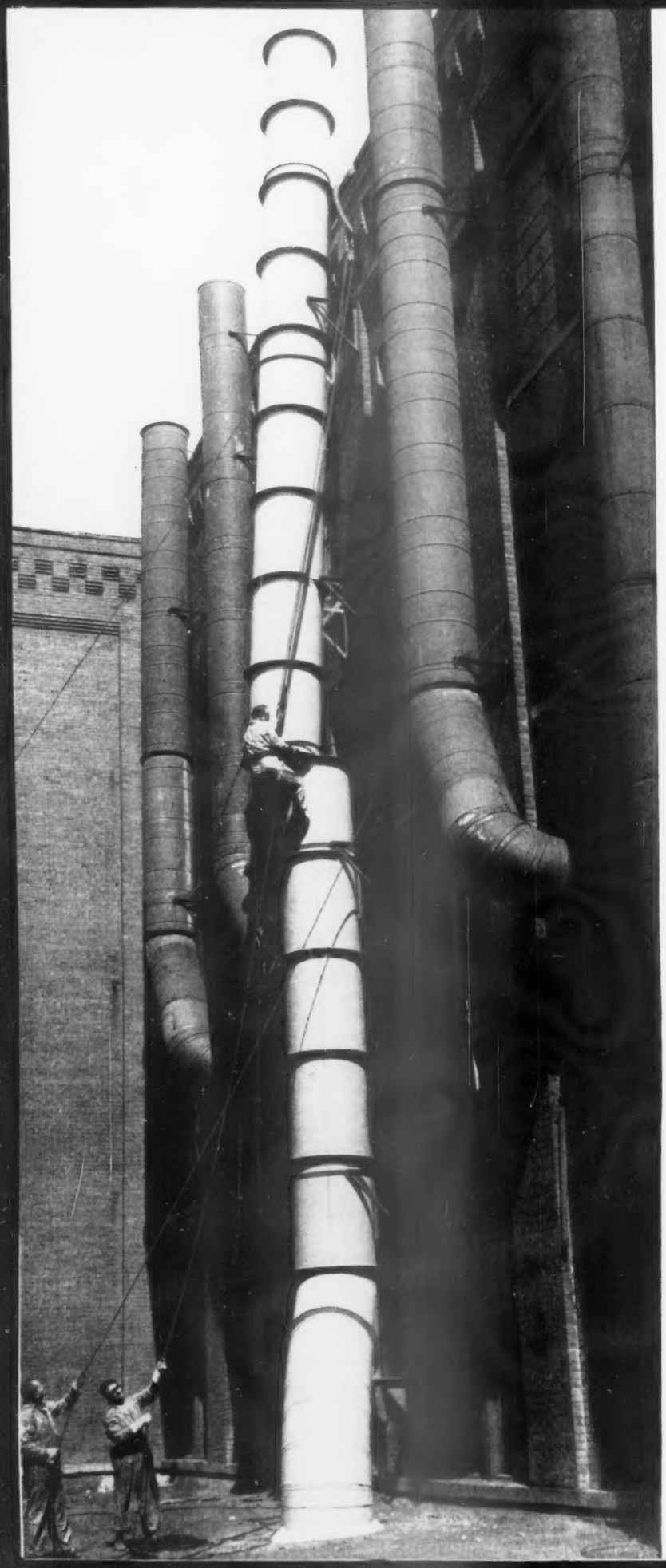
Business News Analysis

Pulse of Business 7
Straws in the Trade Wind 13
The Trend of Prices 17
Washington Report 23
Special Commodity Report: Plastics 27
Purchasing Follow Up 31

Regular Features

Information for Your Catalog Files 40
Letters to the Editor 46
Purchasing People 50
F.O.B. 58
Calendar of Coming Events 65
Purchasing Pointers 67
Editorial: What Makes Purchasing Ethical? 96
Products and ideas 96
Office Equipment and Supplies 134
Association News 148
Industry Developments 170
News 178
Employment Service 204
Index to Advertisers 206

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Pulse of Business

Pace of Economic Recovery Slackens

THE NATION'S **economic engine has been sputtering** in recent weeks, leading some analysts to doubt its ability to generate the power generally predicted for the final quarter. The failure of industrial production and retail sales to make a dramatic upward move in September and October has dampened some of the high-riding enthusiasm in government and business circles.

Although the recent automotive strikes and Hurricane Carla have been responsible for much of the recent hesitancy in industrial production, **the overall recovery, nevertheless, has not been as vigorous in recent months** as it was last Spring. Despite this, government officials and businessmen are still optimistic.

President Kennedy's Council of Economic Advisers recently reviewed the business scene, as did the Business Council—a private organization of leading businessmen who offer their counsel and analyses to the government. Both groups are holding to predictions made before the stickiness developed: **further improvement ahead for the nation's economy, particularly in 1962.**

Auto Strikes Affect Steel Payrolls

Detroit's labor troubles have been instrumental in clamping a damper on the economic recovery, which is now more than six months old. **Operations, employment, and payrolls in the steel industry and other businesses that supply the automobile companies have reflected the curtailment in the auto industry.** General retail sales have also been affected.

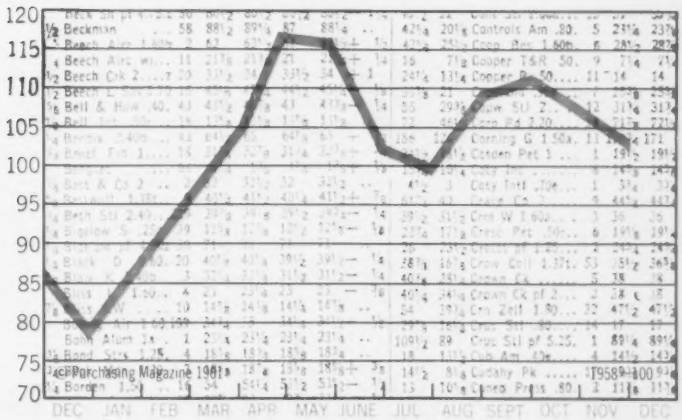
The most encouraging aspect of the situation, however, is this: **automotive, steel, and other production is not actually being lost forever,** but is rather being postponed. This means more promising prospects for automobiles, steel, glass, and other automotive suppliers—once Detroit's labor problems are solved.

Weather, as much as labor troubles, has been affecting the economy. **Hurricane Carla cut off oil refinery output** and other factory production in the Gulf Coast area. And the prolonged stretch of good weather over a large part of the nation in September and October delayed consumer buying of fall and winter merchandise.

(Turn Page)

Business Confidence Index

How P.A.'s feel about the short-term economic outlook



Purchasing Magazine's Business Confidence Index declined three points in November to 104 (1958 =100). This indicates that P.A.'s are not as optimistic about the short-range business outlook as they were last month.



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This showed up in the **rather disappointing retail sales figures for September.** The month's volume was $18.2 billion, down one-quarter of 1% from August and well below the record $18.9 billion rung up in April 1960.

Thus retail sales, one of the economy's most important stimulants, have made only a small advance from last January's recession low of $17.8 billion. However, **monthly sales for the remainder of 1961 will probably surpass the September figure.**

Sales pick up seasonally at least in the next two months.

Industrial production, which tapered off slightly in September, **is also likely to advance in the upcoming months.** Despite the automotive and steel curtailments, the nation's industrial production eased only 1.3 points in September after a six-month rise.

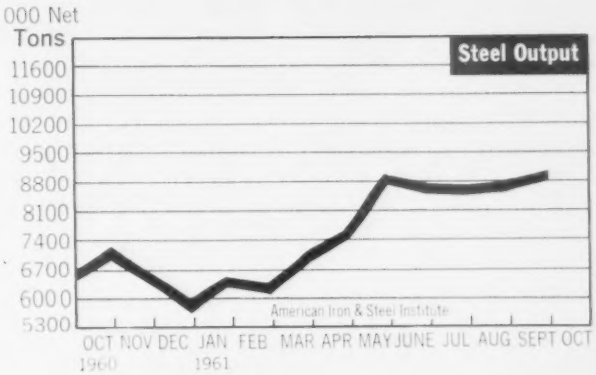
Economists look for industrial production to register sharp advances soon. **A gain of 10% in 1962 is the general expectation.** This would send the Industrial Production Index shooting up to 122 or higher.

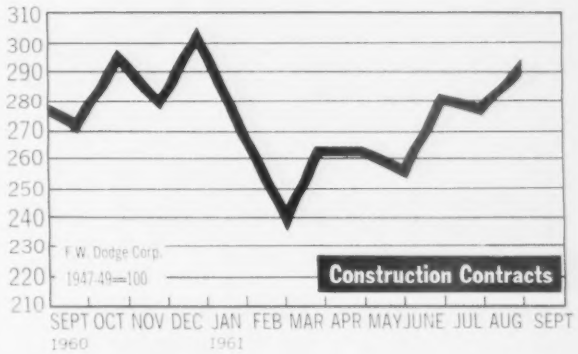
Thus the recent slack in industrial production and retail sales does not provide any cause for great concern among economists. Neither does the state of the Gross National Product, which—**thanks to the ever-rising importance of the service industries**—rose to an annual rate of $526 billion in the third quarter of this year, up more than $9 billion from the second-quarter rate.

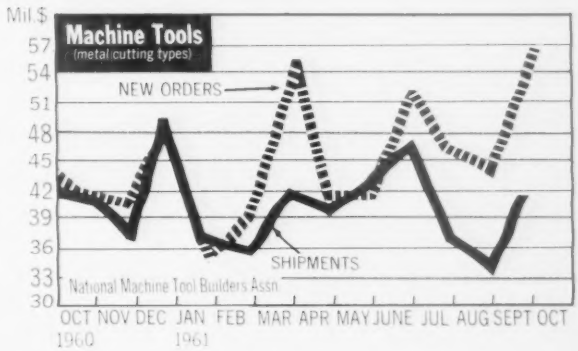
If the GNP is to hit $565 billion next year, however, as the Administration has been predicting, **there will have to be a marked step-up in business and consumer spending to nudge overall production sharply higher.**

Another strong buttress under the economy continues to be personal income. Individuals' income hit an annual rate of $420.2 billion in September, indicating that the American public

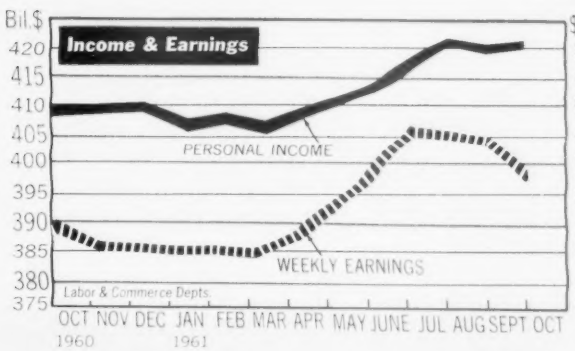
PRODUCTION

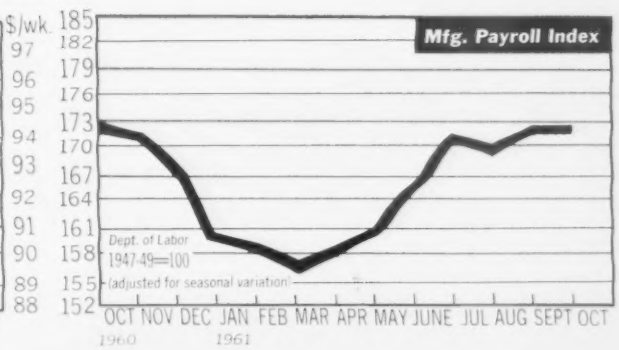






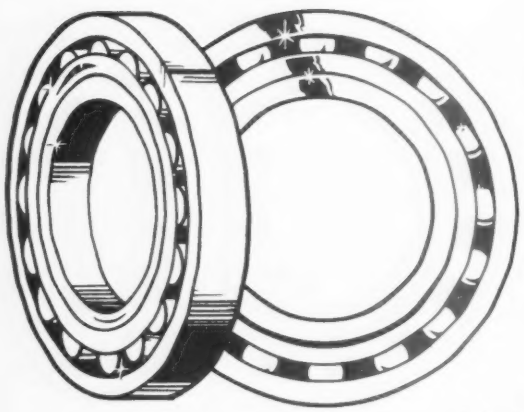
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TRADE

has the wherewithal to go on a spending splurge. According to recent surveys, that's just what Americans plan to do in the next few months.

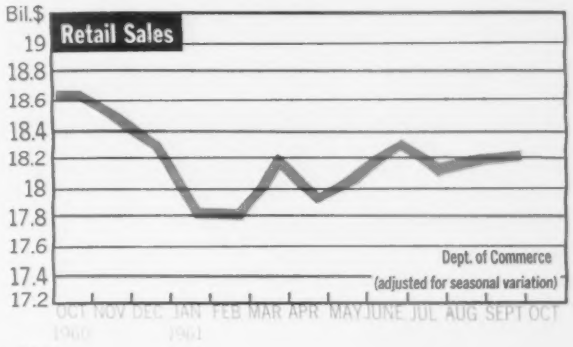
There are **certain areas in the economy that do bother businessmen, however.** These include: (1.) The continued high level of unemployment, despite recent gains in the working rolls. (2.) The possibility of renewed—and severe—inflation next year. (3.) The persistent U. S. balance-of-payments problem, which threatens the stability of the dollar and the level of this country's gold reserve.

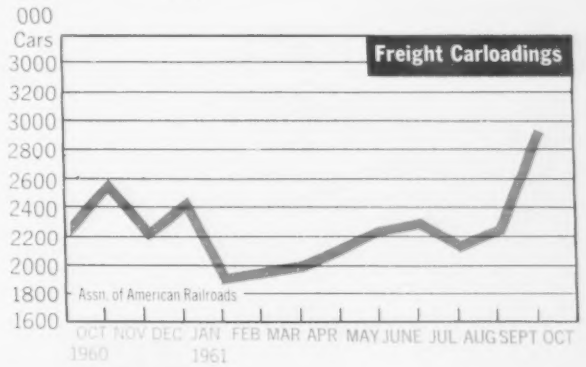
Labor leaders, concerned over the stubbornly high level of unemployment, are opposed to indications that the Administration intends to offer a balanced budget for fiscal 1963. They believe the economy will slip back into another recession and worsen the employment problem unless federal spending is pushed higher.

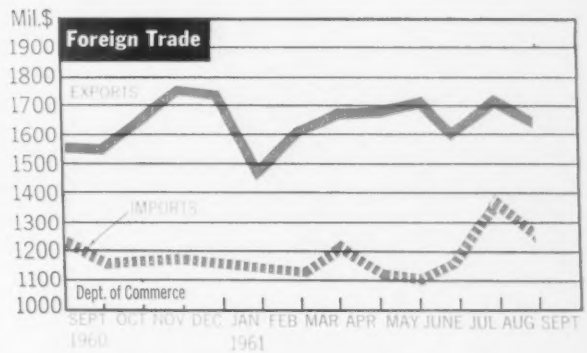
The high-level government spending already authorized makes certain that the current fiscal year will be written in red ink. Treasury Secretary Dillion recently estimated the **budgetary deficit at more than $6.7 billion,** but some economists look for the final figure to be in the neighborhood of $8 billion or more.

Mr. Dillon's latest estimate represents **an increase of almost $1.5 billion in the size of the deficit** since July. He attributed the expected rise to two developments—the failure of Congress to increase postal rates and the sharp increase in government farm-price support payments as a result of bumper crops.

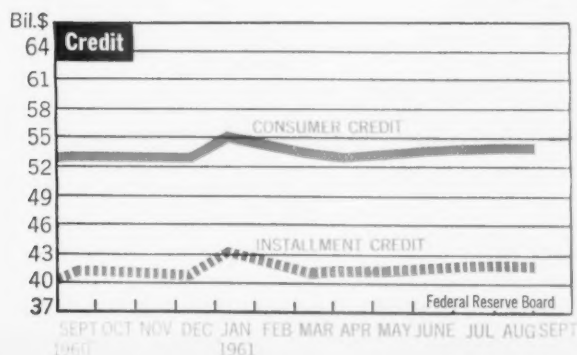
The Treasury Secretary said **he did not expect the large deficit to lead to inflationary pressures.** This same tune is being echoed by other government leaders. But some businessmen and economists are still highly dubious about the prospects of stifling inflation.

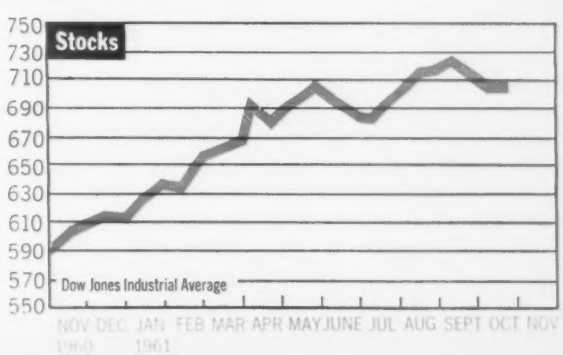




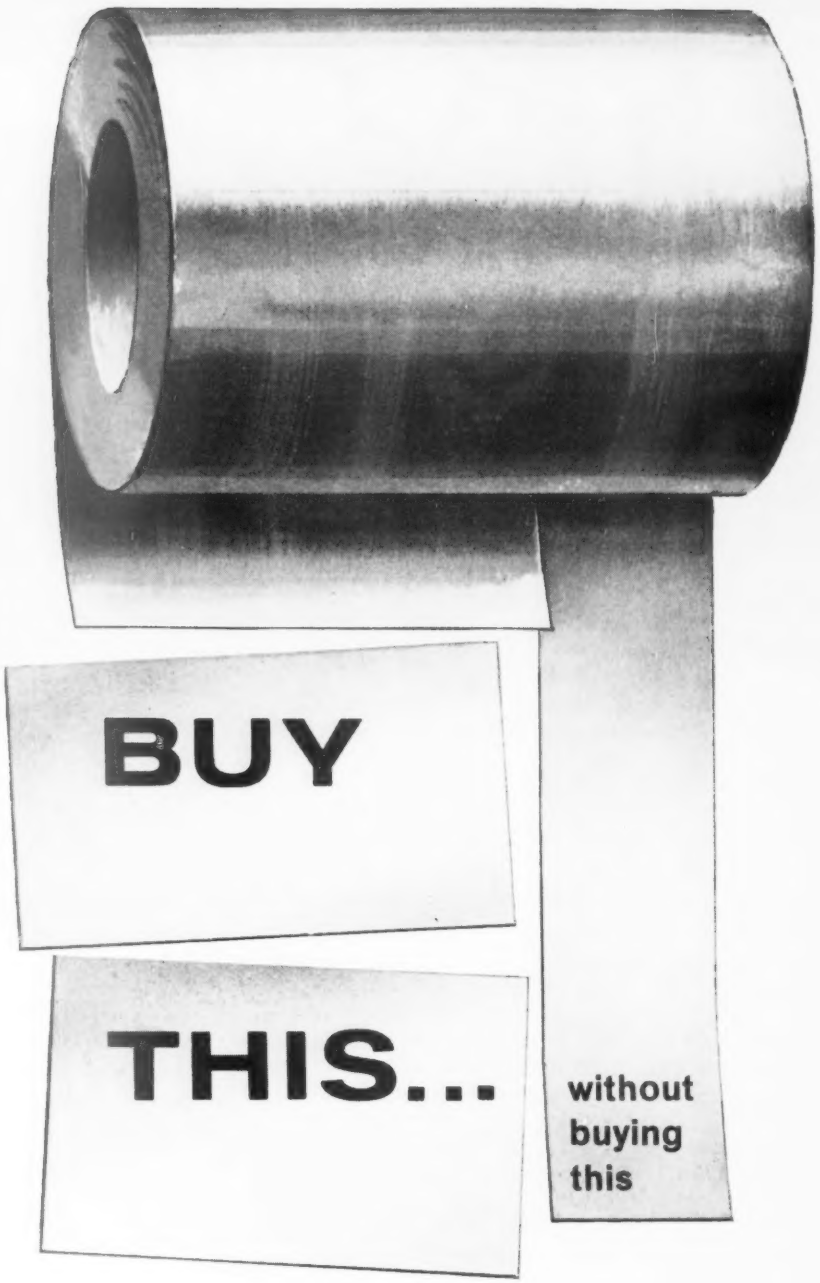


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Straws in the Trade Wind

► **PREDICT INCREASE IN INVENTORIES**—Manufacturers polled in a survey by the Commerce Department expect their inventories to rise in the last quarter of 1961. They predict stocks will advance to $55.7 billion (seasonally adjusted annual basis) by the end of the year, compared with $53.4 billion on June 30. Two-thirds of the buildup is expected to be in hard goods.

► **REPORTING IDENTICAL BIDS**—About 2000 large state and local governments out of a total of 102,000 have been asked to report any identical bids they receive to the Justice Department. Attorney General Robert Kennedy says these reports will be pooled with similar data from federal buying agencies in order to get information on price-fixing and bid-rigging. The request stems from an order issued by President Kennedy on April 24 calling for publication of lists of companies that have submitted identical bids.

► **CHEMICAL SALES TO ADVANCE**—Second half chemical sales will probably increase 5% over the first six months of the year, says Standard & Poor's. This would bring 1961 profits to about the same level as last year's total of $2 billion. A further gain in sales is expected in 1962.

For the P.A.'s Hot File . . .

A leading purchasing executive in the Midwest says that there is a definite possibility of a steel strike next year. To meet this threat, he suggests that P.A.'s start buying their steel for the third quarter of 1962 in January. Among the items that he says will probably be tight during the year are terneplate, galvanized, bar products requiring heavy annealing, and heavy plate.

► **THE MACHINE AND THE MAN**—U. S. armed forces in Europe ordered $7.4 million worth of material it didn't need, says the General Accounting Office. The Pentagon, in turn, says improper wiring of an electrical accounting machine control panel was responsible for the error. It adds that $4000 worth of the material was delivered by the time the mistake was discovered.

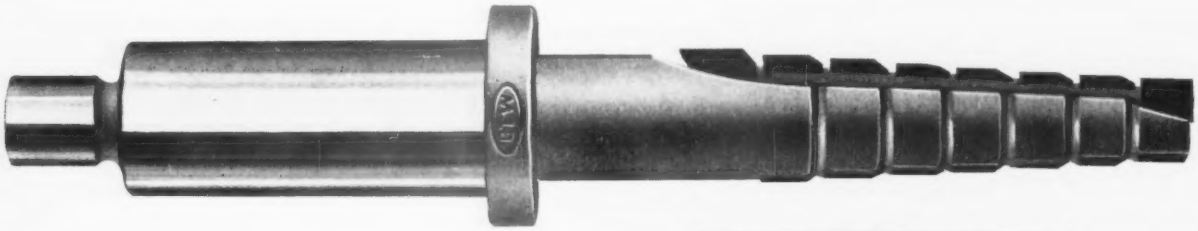
► **AIR FREIGHT RATE CUTS**—What is described as the "first jet-age air freight tariff" has been published by The Flying Tiger Line, following the removal of an air freight rate floor by the Civil Aeronautics Board. The new tariff, which offers shippers rate reductions up to 37%, is designed to reflect economies resulting from the operation of the Canadair CL-44, the new transcontinental all-cargo carrier.

► **MORE FREIGHT CAR DELIVERIES**—Deliveries of new freight cars to the nation's railroads and private car lines amounted to 2700 in September—compared with 2428 in the previous month. Orders for new cars rose sharply to 3143 from 1474 a month earlier, says the Association of American Railroads and the American Railway Car Institute.

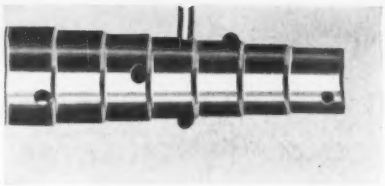
► **NO SELECTIVE PRICE CUTTING**—The Federal Trade Commission has ruled that suppliers may not offer discriminatory price reductions if they are trying to get new business even if competitors are engaged in price cutting. The "good faith" proviso of the Robinson-Patman Act, says the FTC, applies only to meeting competition to retain old customers. But one Federal Trade Commissioner, in his dissent from the majority, raises this important question: How can a vendor distinguish between an old and a new customer in various types of borderline cases?

► **WANTS GUARANTEED PRODUCTS**—Products sold to the Air Force must be guaranteed to be reliable on delivery, says Assistant Secretary for Material Joseph H. Imirie. But in many cases, he says, delivered goods fall far below expectations. He blames this condition on ill-equipped contractors who make low bids on Air Force contracts just to get "a foot in the door."

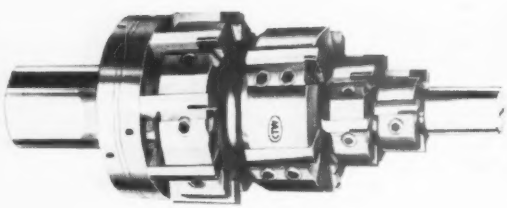
Seven Diameters . . . from solid to finish with one tool, one pass!



Special CTW Bor-Reamer bores and chamfers seven diameters from solid to finish in one operation. Tool is carbide-tipped, uses carbide bearing pads to maintain .001" tolerance on bore size and concentricity. Cut-away photo at right shows ID detail of non-ferrous aircraft part.



Imagine the setup and machining time *you* might save with a single Continental Special Cutting Tool custom-designed to combine two or more operations, to take multiple cuts, or to mill complex contours! Why not let CTW combine your operations on production or short-run jobs? A call to your local CTW Representative will immediately put 40 years of cutting tool research, engineering and manufacturing experience to work for you. Call him today, or write direct for details.



Inserted-blade special cutter, left, finishes four diameters and four shoulders in one pass. Tungsten carbide-tipped cutter at right combines two-step boring, hollow milling and plunge-facing in one tool.



DESIGN FEATURES TESTED IN EX-CELL-O'S OWN MANUFACTURING PLANTS . . .
PRODUCTION-PROVED IN CUSTOMERS' PLANTS THROUGHOUT THE WORLD!

61-34C

Continental CTW TOOL WORKS DIVISION OF EX-CELL-O CORPORATION
DETROIT 32, MICHIGAN

For More Facts Write No. 161 on Information Card—Last Page

Pulse of Business

Straws in the Trade Wind

► **BUSINESS FAILURES DECLINE**—Business failures fell 20% to 1285 in September, reports Dun & Bradstreet. This was only slightly above the year's low of 1275 reported in July and was 1% higher than September 1960. Dollar liabilities climbed to $116.7 million during the month.

► **PENTAGON PLANS BUYING CHANGES**—The Defense Department is considering changes in its procurement policies. One of the items up for study is the fee involved in incentive contracts. Defense contractors want an increase in their incentive fees and this would require a change in the Armed Services Procurement Regulations.

► **'62 A RECORD YEAR**—1962 will be a record-breaking year for business, according to 316 leading economists polled by F. W. Dodge Corp. The consensus is that all major economic indicators will advance next year—with many of them reaching new highs. The economists also expect that both wholesale and consumer prices will creep upward next year.

► **RECORD CORPORATE PROFITS?**—Corporate profits will probably hit a new high in the last quarter of 1961, says Commerce Secretary Luther H. Hodges. Earnings of U. S. corporations could reach an annual rate of $50 billion in the final three months of the year, he declares.

► **HOUSING STARTS UP**—Housing starts totaled 1,360,000 (seasonally adjusted annual basis) in September, says the Census Bureau. This is a 3% increase over the previous month.

► **DURABLE ORDERS RISE**—New orders for durable goods manufacturers advanced $100 million to $15.7 billion in September. Sales, however, fell $200 million to $15 billion, says the Commerce Department. This is the first sales decline in eight months for the hard goods area.

► **STEEL PRODUCTION UP NEXT YEAR**—Steel production in 1962 will be up 10-15% over 1961, predicts John F. Smith, Jr., president of Inland Steel Company. This would put next year's steel output somewhere between 110-115 million tons.

► **FOREIGN QUALITY BETTER?**—A P.A. in the East—who has refused to buy foreign small tools because he was doubtful of their quality—is now changing his policy. He says that in some cases he has found the quality of foreign tools is even better than our own.

► **STAINLESS STEEL OUTPUT UP**—Production of stainless steel rose to 824,999 tons in the first three quarters of 1961, says the American Iron and Steel Institute. This is the highest for the period since 1956 and has been slightly exceeded on only two previous occasions—the first nine months of 1955 and of 1953.



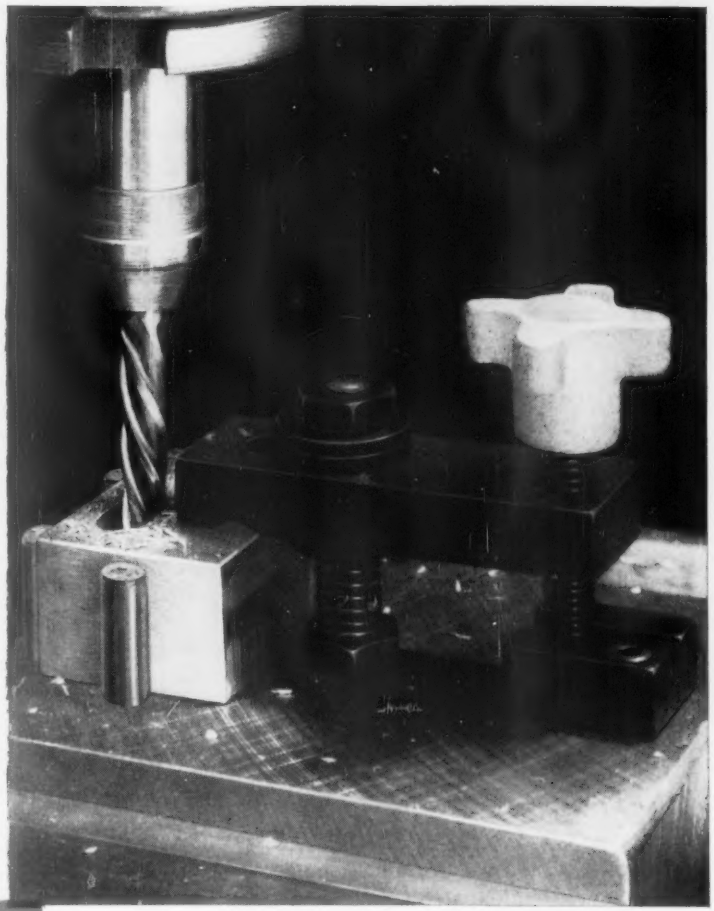
Alwin F. Franz

QUOTE! QUOTE!

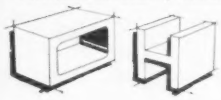
"American steel is in trouble," says A. F. Franz, chairman of Colorado Fuel and Iron Corp. He notes that "Low-priced imports from foreign countries are choking markets for certain types of American steel in this country. American exports are falling off as an ever-increasing number of modernized foreign steel producers woo and win existing and new world markets. American costs are spiraling upwards at a dizzy pace. And a new danger, price reduction, has entered the picture." Franz declares that "To meet rising costs, steel profits must be increased . . . Employees, shareholders, and America stand to benefit by any improvement. We must have greater understanding and a more responsible attitude on the part of government . . . We are willing to go to great lengths abroad to preserve our American way of life—we should be equally willing to go to bat for it at home."

NOW A Complete line of Jig & Fixture time-savers!

Ex-Cell-O Precision Clamp Assemblies and Standard Details for Fast, Economical Fabrication of Jigs and Fixtures

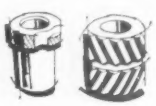


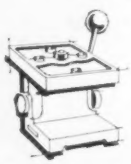
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Lift-Swing Fixtures For fast drilling of difficult holes.

Reader service card number is for Fixture Components only; please request literature on other items separately.

Ex-Cell-O's new line of clamp assemblies, fixture details, spring plungers, torque screws and other fixture components gives you an unusually wide range of standard clamps and details in sizes and types to suit virtually every fixture-building need.

The complete cataloged line—from clamps and locks to plungers, locating buttons, handwheels and torque screws—is available from your local Ex-Cell-O Representative or Distributor, or direct from Ex-Cell-O. Phone TOwnsend 8-3900; TWX-DE 876; Wire ZTC.

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Bushing Sales Division

EX-CELL-O CORPORATION
DETROIT 32, MICHIGAN

For More Facts Write No. 162 on Information Card—Last Page

The Trend of Prices

- **Tin Price Uncertain As ITC Fails to Act**
- **Discounts Continue on Special High Grade Zinc**

TIN BUYERS are uncertain about future developments following a meeting of the International Tin Council. The council failed to reach agreement on a new floor and ceiling for tin prices. The council won't meet again until February 14, 1962.

Some purchasing agents expect prices to fluctuate sharply until the council meets again.

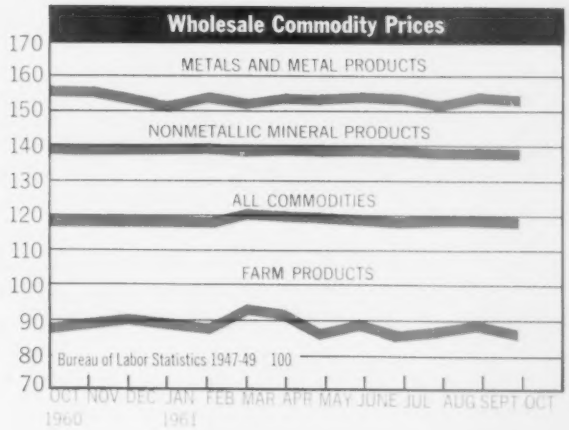
The world tin deficit for this year is estimated at more than 15,000 tons. Of course, the U. S. government has 50,000 tons in its strategic stockpile, but this cannot be released without the approval of Congress.

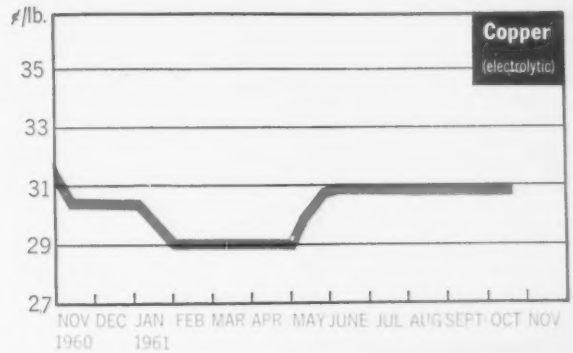
Zinc: The zinc market has been relatively quiet. Supplies of all grades are adequate to meet prevailing demand.

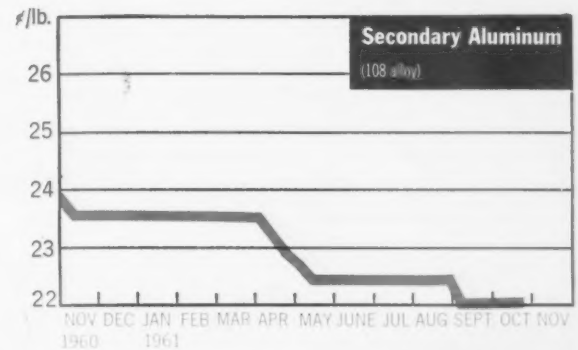
Buyers for steel mills, which use zinc for galvanizing, continue to be the largest consumers of prime western grades. Discounts are still being offered for special high grade—some for as much as 1/2 cent-a-pound.

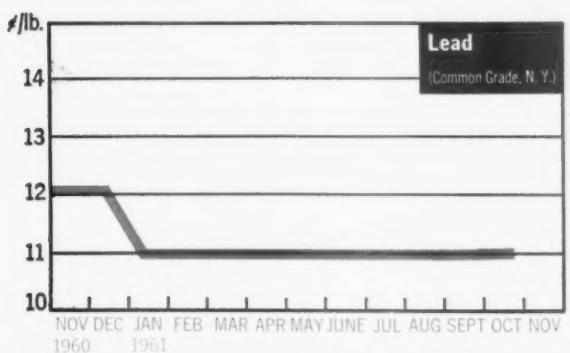
Zinc stocks dropped 23,026 tons to 165,064 tons, according to the latest monthly report of the American Zinc Institute. This was the fifth consecutive monthly decline. Inventories reached the lowest level since May 1960, when they were 165,038 tons.

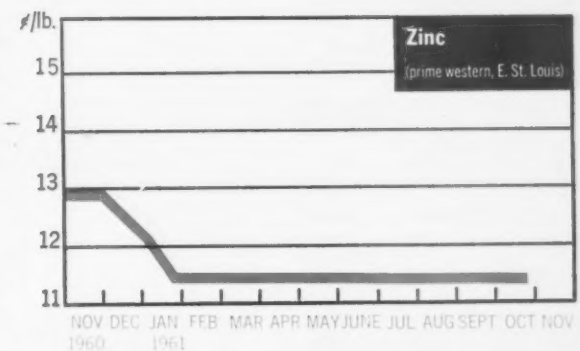
Copper: Orders for delivery this month are being booked by suppliers in fairly good volume. The current ordering rate indicates that the 31 cents-a-pound price will probably hold for the











Quality Controlled at Every Step!

Production parts bored, counterbored, spot-faced, milled, drilled, hardened and ground to your precise specifications

Check an Ex-Cell-O process sheet on any Ex-Cell-O precision production part, and you'll find that at every step, quality control is an important part of Ex-Cell-Ability.

Ex-Cell-O metallurgical laboratories test each run of stock and maintain a close watch on heat treatment methods and results. Non-destructive testing closely follows many Ex-Cell-O machining processes, and production inspection stations use the most modern equipment available.

If precision parts and assemblies are important to your product, your local Ex-Cell-O Representative has a quality control story that will be of interest to you. Call him soon, or simply send us your prints or requirements for a prompt quotation.



These precision parts are produced in volume, yet they are quality-controlled to custom work standards. Large photo above shows typical inspection equipment—a 30-inch Ex-Cell-O Contour Projector used to inspect parts at 100X magnification.





61-32J

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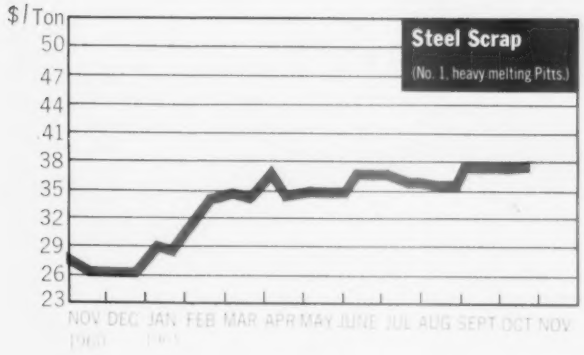
Precision Parts Division

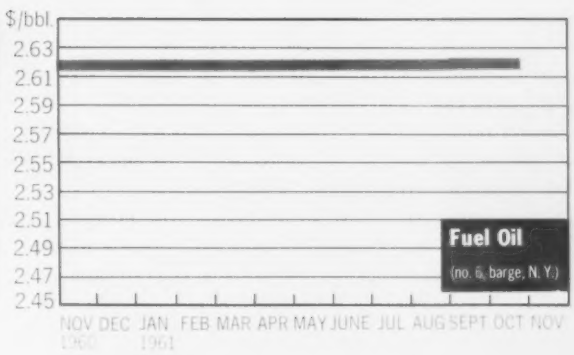
EX-CELL-O CORPORATION
DETROIT 32, MICHIGAN

For More Facts Write No. 163 on Information Card—Last Page

Pulse of Business

More on Price Trends





balance of the year.

According to the latest report from the Copper Institute, worldwide copper deliveries to fabricators rose 14,453 tons to 305,079 tons. In the same period, refined stocks dropped 21,241 tons to 403,671 tons.

Lead: Demand has slowed somewhat in recent weeks. Some carload orders have been placed, however, for immediate shipment.

The International Lead-Zinc Study Group met recently to consider cutbacks in lead production because of substantial unsold stocks in producers' hands. Members of the group are seeking a cure for what they term the "unhealthy" state of the market.

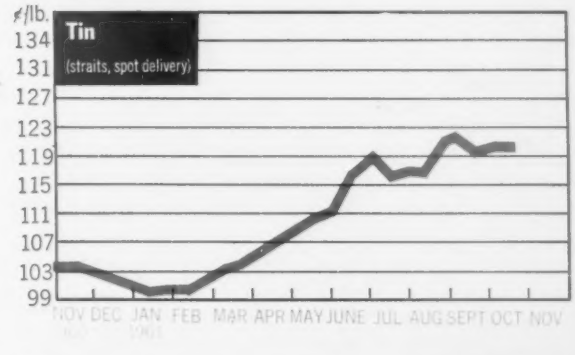
Aluminum: Domestic production of primary metal is being maintained at a stable rate. Output in September was 159,572 tons—compared with 167,040 tons in August and 162,882 tons in September 1960.

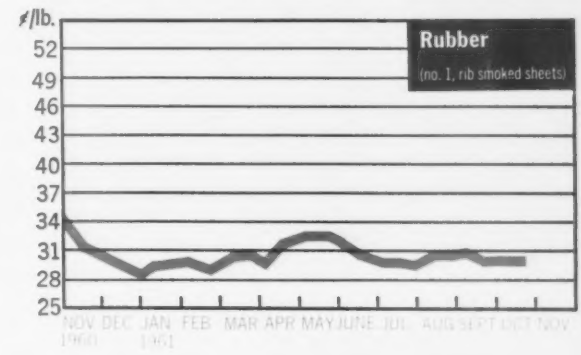
For the year, primary aluminum production will probably total around 1.9 million tons—5% less than 1960. Shipments should rise 4%, however, to 2.4 million tons.

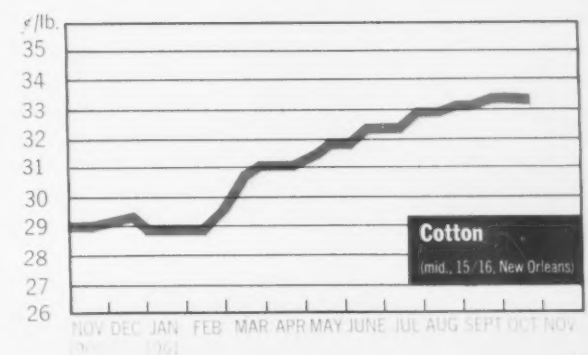
Wholesale Prices: The Labor Department's Wholesale Price Index dropped 0.3% in September to 118.8 (1947-49=100). Sharp declines in farm product prices were responsible for the fall.

Metals prices continued to advance at a moderate rate. Textiles, leather, and leather products extended their earlier recoveries.

Corrugated shipping container prices jumped 7.7% during the month in response to heavier demand based on the business pickup. Copper water tubing and copper sheet prices also advanced.





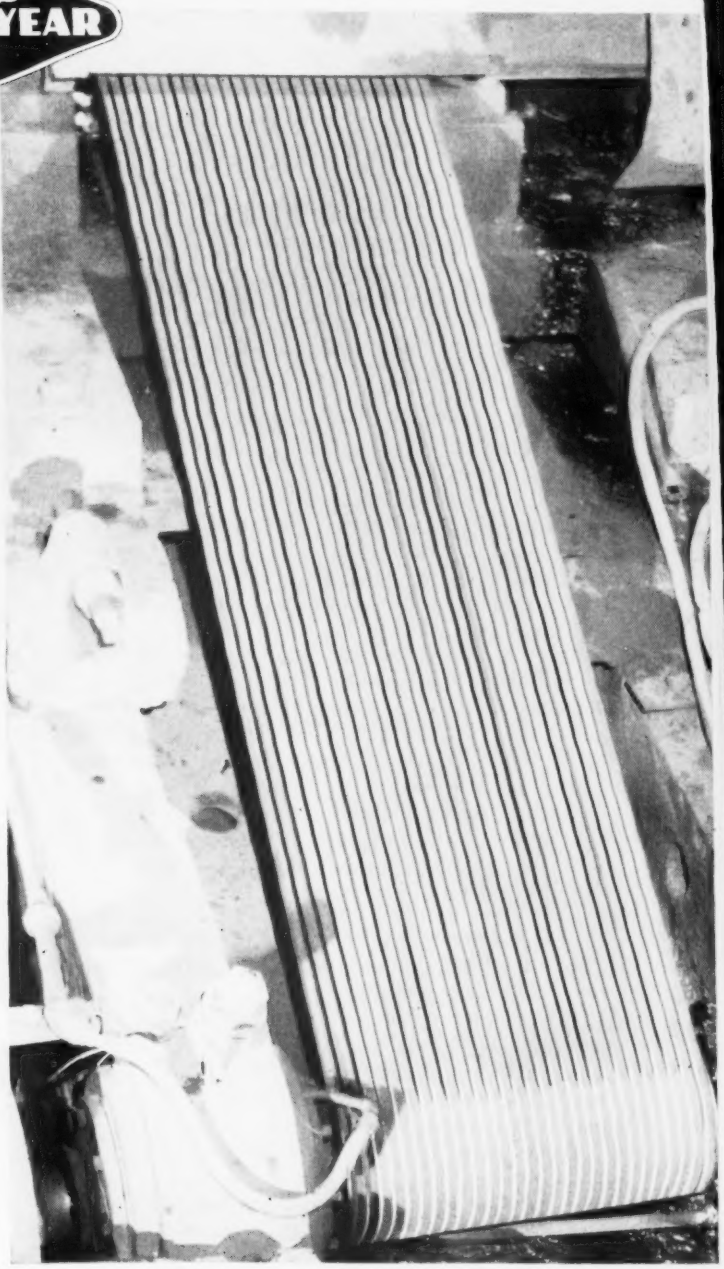


GOODYEAR EXCLUSIVE!

IS YOUR SIGN OF V-



Goodyear V-Belts' precision matching comes from this exclusive close-tolerance matching equipment that length-codes each belt to 1/32". Most other belt manufacturers code only to 1/10".



Goodyear V-Belts' precision matching assures standout performance. Example: only 28 COMPASS-V-Steel Belts handle this big steel saw, normally calling for 42 belts. Result: the steel mill saved $500 at the original installation – will save more at every belt change.

THE GREEN SEAL BELTS CODED TO 1/32"



Here's your assurance that every belt in a set matches in length – pulls together for maximum trouble-free horsepower hours

What's more, the Green Seal means –

Dimensional stability that lasts the life of the belt–thanks to shrink- and stretch-resistant "muscles" of 3-T Process Cord or airplane-type steel cable built into each belt.

Satisfactory performance even when subjected to dampness – because of special mildew-inhibited compounds.

The most complete line of V-Belts anywhere today – always within easy reach through a nationwide network of distributor stocks.

The proper selection of V-Belts to meet your requirements with the help of the G.T.M.– Goodyear Technical Man – America's top belting specialist.

So make the GREEN SEAL your sign of savings–in both time and money–by calling your Goodyear Distributor. Or write Goodyear, Industrial Products Division, Akron 16, Ohio.

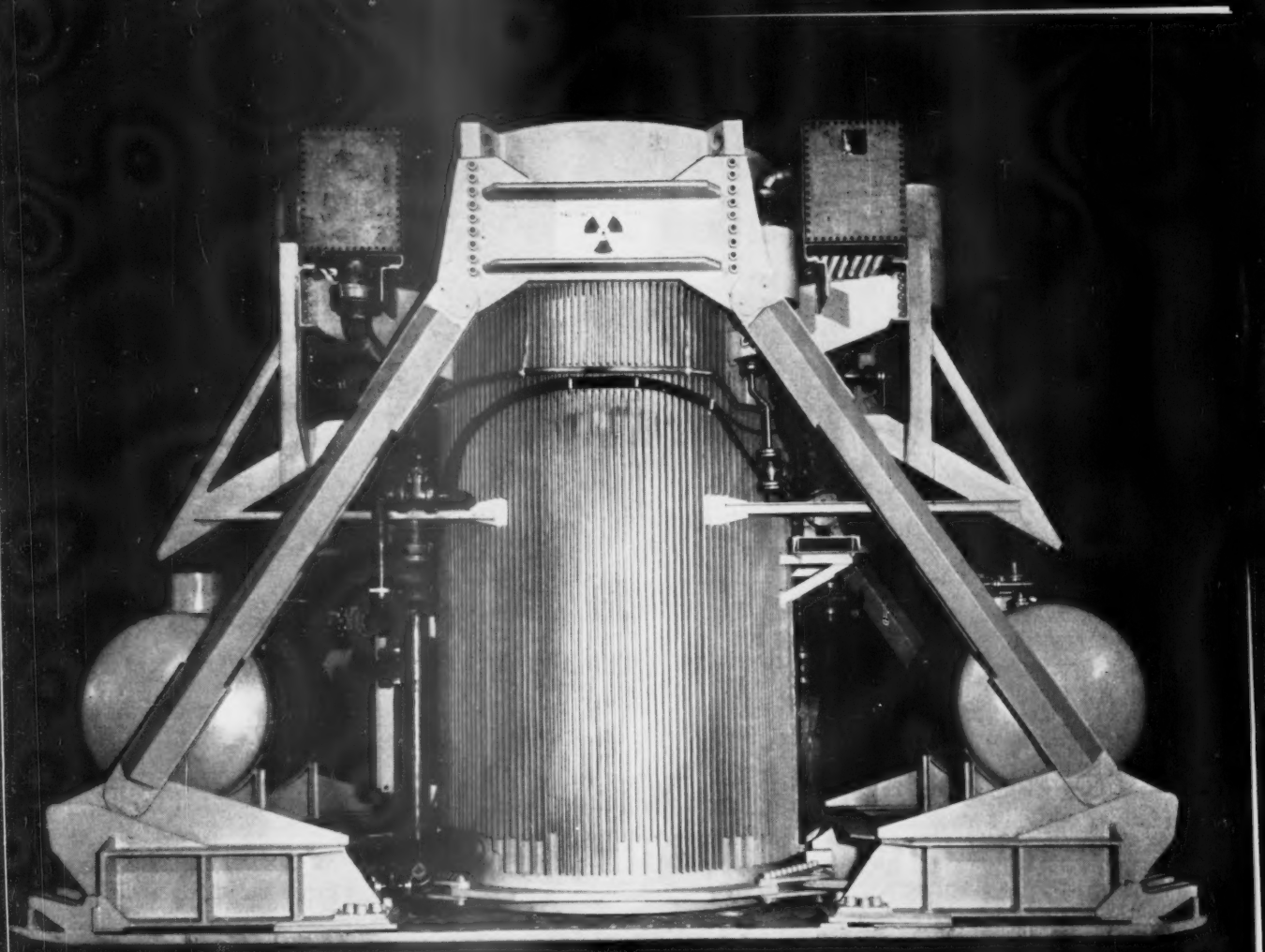
Lots of good things come from

GOODYEAR

INDUSTRIAL PRODUCTS

Green Seal, Compass–T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

For More Facts Write No. 164 on Information Card—Last Page



for safety's sake there's Carlson Stainless Plate in this Spent Fuel Shipping Cask

One of a group of Spent Fuel Shipping Casks designed and fabricated by Knapp Mills Incorporated for General Electric Company.

Photo courtesy of Knapp Mills Incorporated.

Spent atomic fuel is "down but not out." Containing unused uranium, it still must be handled safely and surely in being moved by rail, boat, or truck to recovery stations throughout the country.

Carlson Type 304 stainless steel plate was used in various parts of these shipping casks. Designed and fabricated by Knapp Mills Incorporated of Wilmington, Delaware, each cask weighs approximately 125 tons.

For maximum assurance—whether you build chemical, process, nuclear, missile, or aircraft equipment—specify dependable Carlson stainless steel plate. Specialists produce the material to meet your exact specifications. Your fabrication is easier—true-up and finish-welding is done quickly and efficiently. This, plus prompt delivery, is the total Carlson service you can count on—write, wire or phone today for complete information and assistance.

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130 Marshallton Road
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District Sales Offices in Principal Cities

Plates • Plate Products • Heads • Rings • Circles • Flanges • Forgings • Bars and Sheets (No. 1 Finish)

For More Facts Write No. 165 on Information Card—Last Page

Kennedy Wants Tax Credit For Capital Investment

IN THE NEXT session of Congress, the Kennedy Administration will renew its proposal to give business an 8% tax credit for investment in new plant and equipment. Undersecretary of the Treasury Henry H. Fowler says that the Administration firmly believes tax incentives to encourage plant and equipment investment deserve "urgent treatment on a priority basis."

Says Fowler:

"Increasing the investment levels in productive machinery and equipment contributes significantly to three of our vital national economic objectives. First, it encourages the long-term growth of our economy. Second, it improves our international balance of payments position by increasing competitive efficiency. And third, it contributes to making our present economic recovery a vigorous and long-lasting one.

"One of the best ways to increase investment levels in productive machinery and equipment is through tax treatment of this investment. That is why this Administration has undertaken thoroughgoing depreciation reform."

Campaign to Sell Congress

Treasury officials are currently building up support for a campaign to sell Congress on incentives for capital investment. They are basing their arguments on the fact that a great deal of U. S. plant and equipment is overage.

Fifty percent of America's present capacity was installed before or during World War II. More than 65% was installed before the Korean War. And of all our business and plant equipment, only about one-third was built since 1950.

This is counter to the trend in other countries who have been lowering the average age of their fixed capital equipment. In West Germany, the proportion of capital equipment and plant under five years of age grew from one-sixth of the total in 1948 to two-fifths in 1957.

The Administration is concerned about the leveling off of capital expenditures in this country. The rate of plant and equipment spending this year is about 3% less than last year

Dixon Endorses Stricter Enforcement



Chairman Paul Rand Dixon of the Federal Trade Commission has endorsed tougher legislation for antitrust law violations. He seeks heavier fines and mandatory jail terms for repeated offenders. The Senate Antitrust and Monopoly Subcommittee plans to introduce legislation on this subject in the next session of Congress.

In tool steel specialties...



A-L's
F & C TRIPLE BARREL SERVICE

BRINGS DOWN TOOLING COSTS

Only Allegheny Ludlum's Forging and Casting Division of all the companies in the U. S. supplies tool steel in cast-to-shape form, in forgings, and in composite die sections. Usually, of course, your design will strongly indicate which of these processes should be used. But when you have a case that is not clear-cut, you will especially appreciate the uniqueness of A-L's triple barrel service.

Because A-L's representatives are familiar with all three processes they give you an unbiased recommendation. Your A-L representative's only concern is for making your parts in the best and most economical manner. He's never under pressure to promote one process against another. You can put your trust in an A-L recommendation.

√ A-L's **Cast-To-Shape** tool steels are made of electric furnace steel melted to precise laboratory standards. Exacting foundry practice enables A-L to make castings—even very intricate shapes—so that little stock need be removed for finish. Why buy metal you don't use?

√ A-L's **Composite Die Sections** are made of fine A-L tool steel cutting edges electrically butt welded by a special process to nonhardenable mild steel bases. A wide range of straight and shaped sections is available in a huge array of sizes.

√ A-L's **Hammered Forgings** come in an extensive range of shapes and in sizes up to 3,000 pounds. You can be sure of quick delivery from A-L because all A-L tool steel forgings are made from huge stocks of genuine A-L billets.

For complete information on A-L's triple service ask your A-L representative for a copy of the 28-page booklet FC4, or write: ***Forging and Casting Division, Allegheny Ludlum Steel Corporation, Ferndale, Detroit 20, Michigan. Address Dept. P-11.***

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FORGING AND CASTING DIVISION | 3290

For More Facts Write No. 166 on Information Card—Last Page

and about 6½% less than 1957. Much of the obsolescence of our plant and equipment is due to the inadequate depreciation allowances authorized for federal income tax deductions. To stimulate economic growth, other nations have established depreciation rates for machinery and equipment which are based on life estimates appreciably shorter than the average actual lives of the equipment. In addition, many countries allow one or more of the following:

(A) Revaluations and special allowances to offset higher replacement costs.

(B) Total depreciation in excess of 100% of cost regardless of price changes.

(C) Initial allowances in the year of acquisition which make possible a very rapid recovery of an investment in machinery, though they do not give total allowances in excess of costs.

(D) Special additional allowances above cost.

Provide Investment Incentives

Most of the Western European countries permit shorter life estimates for depreciation than those contained in "Bulletin F" of the Internal Revenue Service. Many of these nations give additional incentives in the year of acquisition.

A similar approach was recommended in the program proposed by President Kennedy in his tax message last April 20. However, the proposal at that time was "gimmicked" with a sliding scale of incentives depending on the amount of new investment.

When it became clear that this suggestion had little support in Congress and was not very well received by industry, the Treasury Department indicated that it would support a credit against income tax equal to 8% of the cost of new investment where the property purchased has a useful life of at least six years.

The business community generally indicated suspicion of the President's original proposal. Business leaders felt that the incentive offered was not enough and that the tax credit was offered as an alternative to depreciation reform.

Treasury officials indicate that the 8% tax credit is as far as they will go. And they declare that the tax credit is in no way to be considered a bar to changes in "Bulletin F." As proof of this position, they cite the recent Treasury Department action changing the administrative guide-lines governing depreciation of textile machinery.

Helping the Textile Industry

The cotton textile industry has been one of the hardest hit by obsolescence. Efforts to get an agreement from the Japanese that would aid the U.S. cotton textile producers were unsuccessful and the mill owners were in no mood to wait for another round of Congressional sparring.

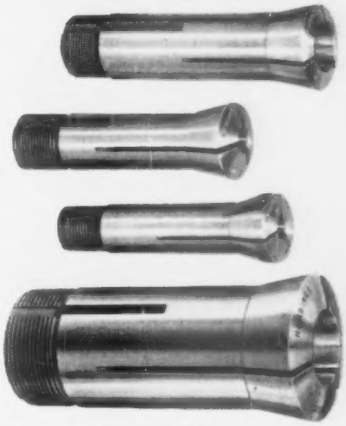
As a result, the estimated useful life of most textile machinery and equipment has been reduced from 25 years or longer to 15 years. In some cases, it has been cut to 12 years.

Treasury Department officials point out that they are continuing to study depreciation allowances for all industries. Observers here expect that there will be a general revision of "Bulletin F."

Such a revision will probably be on an industry-by-industry basis and will tend to stretch out over a period of time. However, the Treasury Department —after being pressured into giving the cotton textile industry immediate relief—will undoubtedly be open to similar prodding by other industries.

The tax credit proposal will be the first order of business of the House Ways and Means Committee when Congress reconvenes in January. The 8% credit will be coupled with a series of proposals to provide revenue gains sufficient to offset the $1.1 billion annual loss that would result.—**A. N. Wecksler.**

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I-T-E CIRCUIT BREAKER COMPANY
BULLDOG ELECTRIC PRODUCTS DIVISION

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Plastics: Boom Continues, but Prices Remain Soft

ALTHOUGH FINAL figures are not in, indications are that 1961 will be plastics' biggest year. Production may well top 1960's record 6.2 billion pounds. However, an old problem that has been bothering the plastics industry for the past few years still remains— over production and price softness.

In the past price cuts helped expand markets for plastics, but 1961 saw some producers caught in a profit squeeze. As a result they are making an all-out effort to reduce operating costs.

So far as sales are concerned polyethylene, polyvinyl chloride, and polystyrene naturally were the leaders.

In the first six months of 1961, polyethylene sales probably topped 700 million pounds, compared to the 600 million pounds sold during the same period in 1960. If the trend continues, total sales for 1961 can surpass the record mark of 1½ billion pounds.

Buildup Capacity

But at the rate plants are going up, capacity for polyethylenes of all types may well be over 2 billion pounds by next year. This includes both the conventional low-pressure type material and the tougher, more rigid, and more heat resistant high-density polyethylene grades (which probably account for some 350 to 400 million pounds of the total capacity.)

Prices of all types of polyethylene have continued downward. Low-density types have been cut to 26¢ per pound, despite an abortive attempt earlier in the year by a major supplier to jack up prices.

Sales of high-density polyethylenes should come close to 250 million pounds by the end of the year. Nearly 80 million to 90 million pounds of this will go into the burgeoning blow-molded bottle market. Injection molded high-density polyethylene products should account for another 75 million to 85 million pounds.

Profit Margins Shrink

Despite earlier predictions that producers would hold prices on high-density polyethylenes at 35¢ a pound, injection and blow-molding grades are now at 32¢, while tougher grades of high-density have come down from 38¢ to 35¢ a pound.

In polyvinyl chlorides — the second largest volume plastic, with 1961 sales estimated at somewhere between 900 million and a billion pounds—the soft price structure has caused a great deal of concern among vendors. Currently, general-purpose vinyls are down from last year's 18½¢ per pound to 17¢—which comes dangerously close to the price of basic vinyl monomer from which the vinyl polymer is made.

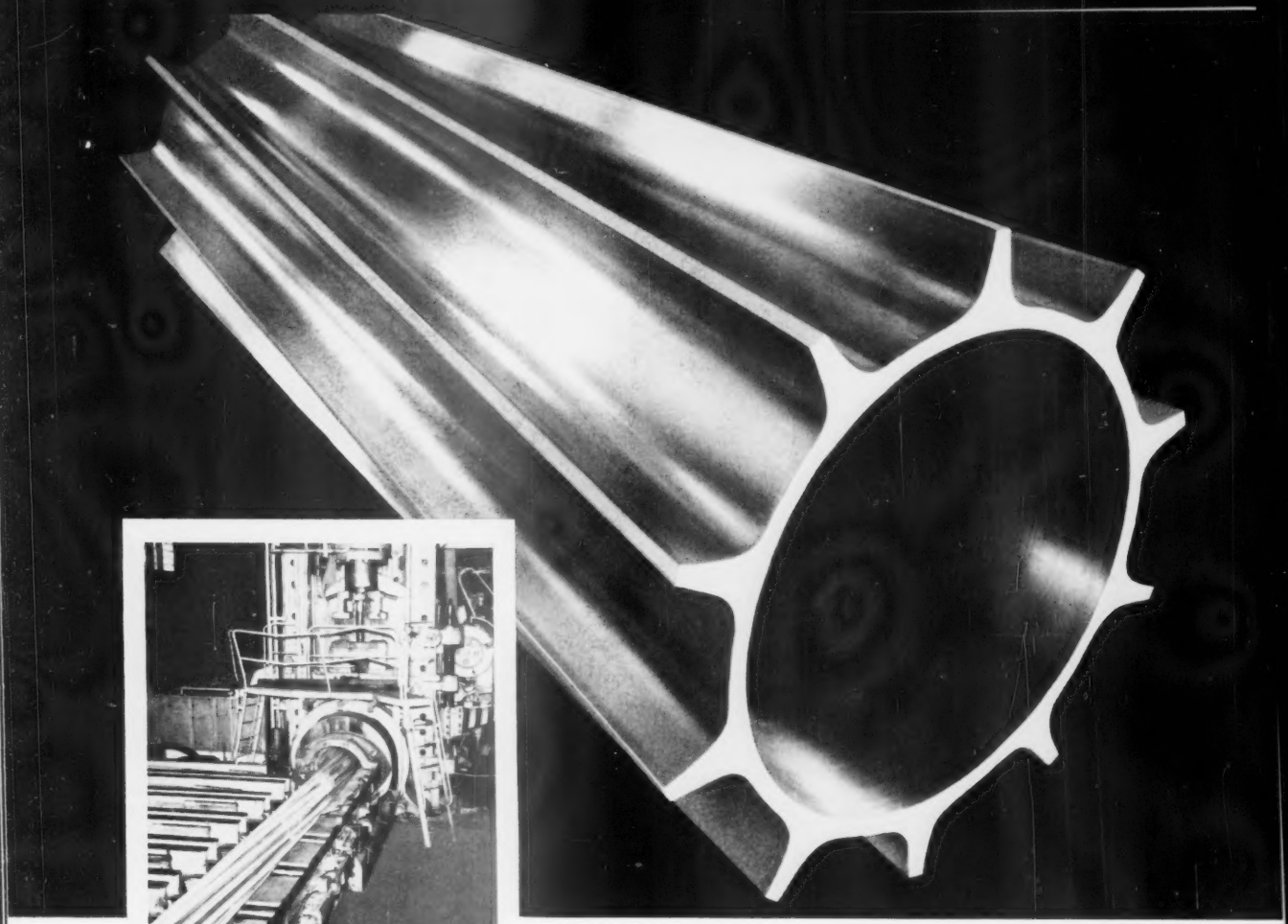
The same price drop has been noted for some of the specialty vinyl resins going into flooring and tile. Rigid vinyl copolymers, which seem on the verge of an important breakthrough into consumer and industrial products, dropped to the 36¢ to 38¢ a pound category to meet competition from other plastics. The rigids — offering greater toughness, heat resistance, and processing adaptability—can be an important factor in expanding traditional vinyl markets.

Polystyrene Sales Booming

The breakdown of markets for vinyls remained about the same, with molded and extruded products accounting for 35% of sales and flooring retaining 18%. Use of vinyls for textiles got a boost in 1961 with the development of techniques for foaming vinyl coatings on fabrics to improve their hand and feel. About 35 million yards of material were coated in this fashion in 1961.

Polystyrene, on the basis of sales figures reported thus far this year, shows signs of becoming the third major plastic to come close to the one-billion pound sales figure. As in 1960, the impact grades continued to make significant increases in their share of the overall market—particularly in such areas as door liners, toys, and tile.

The ABS materials (acrylonitrile - butadiene-styrene), under the impetus of such successful applications as telephones, typewriter housings, pipe, automotive instrument clusters, and industrial housings, also made a fine showing in 1961. Two more producers, Goodrich and Monsanto, came into the field to join Marbon and Naugatuck as suppliers—and several other companies indicated they would be



NEW TWIST IN EXTRUDING ALUMINUM...

giant press produces 48-foot rotor with spiral vanes, eliminates welding

This big aluminum rotor is extruded with spiralled, integral vanes on a 13,200-ton press at Dow's Madison (Illinois) Plant. Substituting this extrusion for a weldment in Salina Manufacturing Company's "Blendvane" feeders not only cut production time and costs, but improved the unit's feeding action!

Using extruded rotors, Salina has eliminated the time and cost of welding on straight bar stock vanes. Spiral-vane design (not practical with welded vanes) produces a more even feed of the material being transferred.

IF YOU USE EXTRUSIONS, or weldments, it may be possible to extrude a better, lower-cost part than you are now using. Dow's experience and full range of extrusion equipment—including presses ranging from 1700 to 13,200 ton capacity—combine to produce parts in a variety of alloys and designs.

Conventional shapes, unusual shapes . . . see Dow for *both*. You'll find a combination of extrusion quality and economy that can make your profit picture brighter. For more information, write THE DOW METAL PRODUCTS COMPANY, Midland, Michigan, Merchandising Department 1115EE11-6.

DOW ALUMINUM MILL PRODUCTS

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Division of The Dow Chemical Company

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in the field soon.

But it was the pricing situation in styrenes that created the real interest. Most of the major styrene producers have already announced price increases of 1¢ to 2¢ a pound for general-purpose and impact grades. However, not more than two of the companies involved could decide which grades should be hiked.

For example, two suppliers jacked the price of general-purpose crystal from 18¢ to 19¢ per pound; yet a third didn't touch its crystal prices, but boosted its color styrene from 20¢ to 21¢ a pound.

Can They Raise Prices?

Two questions now remain: Will all producers put through an across the board price increase or (as in the case of polyethylene) will they have to go back to the original price? And what effect will any price changes have on the impact grade materials which sell in the 20¢ to 35¢ per pound price range and the ABS plastics which sell in the 37¢ to 50¢ category?

A fourth material, polypropylene, which probably will account for only around 75 million pounds in 1961, still bears discussion with the volume plastics. Reason: by 1965, markets for the material could easily top the 500 million pound level.

Finding New Applications

Using its heat resistance, stiffness, and remarkable flex strength, the material has already started to move into injection molded applications for industrial components and appliance parts, as well as for blow molded bottles, wire and cable, and filaments for textile applications. The price has been 42¢ a pound since 1959. If production capacity outpaces sales by a large extent, this price may also be cut. It now looks like the end of 1962 will see over 450 million pounds of material on stream from the nine producers of polypropylene.

The important trend in "premium-priced" plastics (over 40¢ per pound) in 1961 was their increased use in engineered applications for the automotive, building, boating, and appliance industries. Although these plastics are higher in cost, vendors feel that they have a competitive edge over metals because of their lower cost per cubic inch (more parts can be turned out with less material) and the fact that intricate precision parts can be molded to close tolerances in a single piece.

Among the more important materials included in this group are:

High-impact acrylics—at about 46½¢ a pound—have started to compete actively for such applications as heels for women's shoes, auto parts, outboard motor housings, machine housings, toys, telephones, and appliance parts.

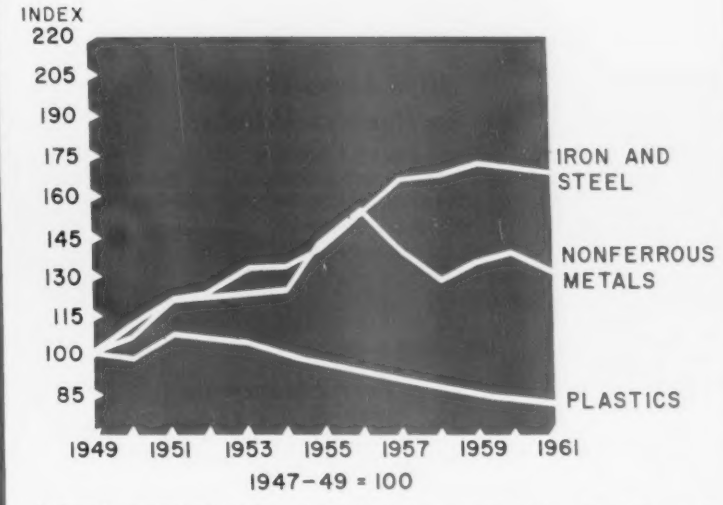
Increased Markets for Acetal

Acetal, although in the 65¢ per pound category, found a wider outlet in such markets as instrument clusters, appliance parts, sporting goods, pumps, plumbing, and hardware — all traditional markets for metals. There are now two producers of acetal—DuPont, the original developer, and Celanese. There is a good possibility that these materials may someday get down to a 50¢ per pound range, at which point many more markets will open, especially for blow-molded varieties.

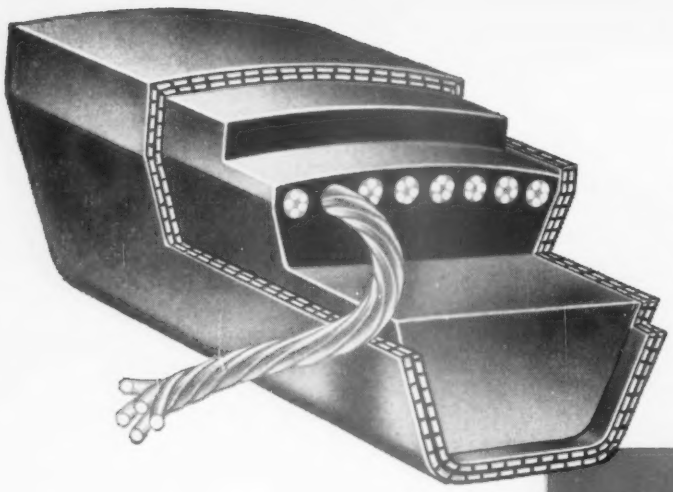
Polycarbonate, in the range of $1.20 to $1.75 per pound, continued to be strong in electronic and industrial parts. It also was starting to creep into such unusual application areas as intrument handles, lighting louvers, and industrial safety hats.

Nylon, now in the 98¢ a pound range, still hasn't hit the volume markets in housewares, radio cabinets, air conditioning grilles, and lighting fixtures that had been expected earlier. But a swing toward consideration of the material for power drill and electric shaver housings has raised hopes for the future.

Plastics Prices Still Falling



Although per-pound prices of plastics are usually higher than those of metals, average plastics prices continue to follow a gradual downward course, while metals prices rise. This, plus the fact that lighter weight means more parts from less material, is giving plastics a competitive edge. The trend to using them in place of metals is therefore likely to accelerate.

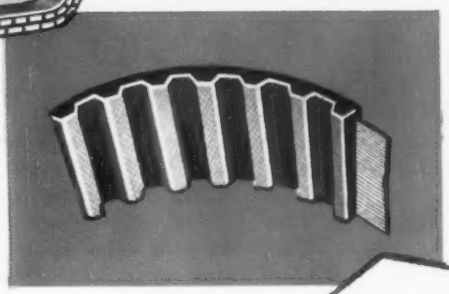


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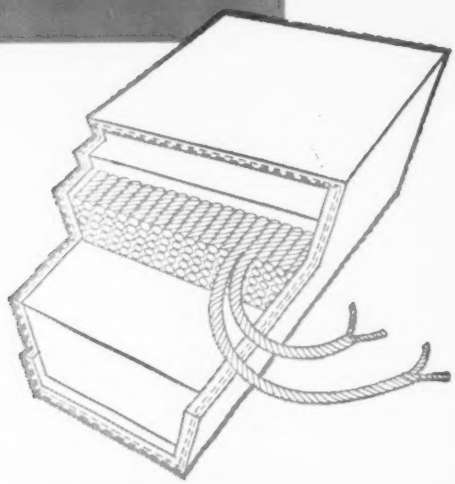
DA POSITIVE DRIVE BELTS. Revolutionary tooth-grip principle; no stretch; no constant lubrication. Highly versatile.



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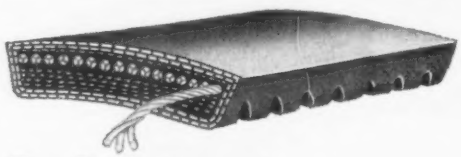
What do you want in a V-Belt? You want consistent performance, long trouble-free life and full-rated power transmission. That means the belts must be made of the finest quality materials, with careful attention to engineering details, manufacturing processes and testing procedures. Durkee-Atwood V-Belts are made of the newest high tenacity synthetic fibres to assure length stability in storage. The exclusive Durkee-Atwood "Iso-Dynamic" Vertical Matching Machine eliminates the "sag error" that develops when V-Belts are matched on horizontal equipment. This assures equal power transmission from all belts on multiple drives . . . Look to Durkee-Atwood for *quality, service* and *savings* ...*the most complete line of industrial V-Belts.*

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DURKEE-ATWOOD COMPANY MINNEAPOLIS 13, MINNESOTA

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Expect Slower Steel Deliveries in 4th Quarter

STEEL buyers can expect slower deliveries from the mills in the fourth quarter of 1961, according to the latest steel market report of the National Association of Purchasing Agents.

The report, issued by Charles Steers, chairman of the N.A.P.A. national steel committee, notes that shipments of plates and sheets are lagging behind the other types and grades of steel.

Forty-nine percent of the purchasing agents taking part in the survey predict a 30-day lead time for steel deliveries in the fourth quarter; 45% expect a 60-day delay, and the remainder think lead time will reach 90 days. Sheets and plates are the main products requiring more than 30 days, according to the report.

Sixty-five percent of the P.A.'s believe steel prices will remain at current levels during the last quarter, with the remainder predicting higher prices. Those who do anticipate a price hike think the increases will run $3-$5 a ton and will only be on a number of the large volume items.

Almost three-quarters of the buyers do not plan any changes in their inventory policy during the current quarter. However, 60% plan to carry larger stocks in the first quarter of 1962.

Situation Like 1959

Committee Chairman Steers says that there are two main reasons for the expected first quarter inventory buildup. First, business conditions are expected to improve in all areas. Secondly, most P.A.'s believe steelmakers will repeat their early 1959 "prestrike selling program"—which stresses inventory buildup as a strike hedge. Such a program, he says, could gather momentum if the steel industry foregoes a general price increase until the end of the present labor contract.

When Labor Contracts Expire

NOVEMBER

Industry	Company	Union
Aircraft	United Aircraft	IAM
Electrical Machinery	Maytag Co.	UAW
Farm Machinery	Allis-Chalmers Mfg. Co.	UAW
Metals	Kennecott Copper Co.	UAW
Motor Vehicles	Studebaker Packard Corp.	UAW
Paper	West Virginia Pulp & Paper Co.	UPP
Transportation Equip.	Lifkin Foundry & Machine Co.	FLU
	Clark Equipment Co.	UAW
Utilities	Consolidated Edison Co.	Utility Workers

DECEMBER

Industry	Company	Union
Electrical Machinery	Hoover Co.	IBEW
Manufacturing	Olin Mathieson Chemical Corp.	IAM
Tobacco	American Tobacco Co.	Tobacco Workers

Smathers Charges Waste In Military Procurement

The federal government wastes two to four billion dollars a year "to build a paper army armed with red tape weapons," says Senator George Smathers (D-Fla.), chairman of the military procurement subcommittee of the small business committee.

Senator Smathers charged that at least one dollar out of every ten spent for military supplies "is needlessly diverted from piles of munitions to piles of paper." In the last fiscal year, $23 billion was spent for military equipment and supplies.

The Senator made his statement when he outlined the report to the subcommittee prepared by the military procurement advisory committee. This report was based on a 15-month investigation and survey.

Senator Smathers declared that 168 of 346 specifications required by the Defense Department for manufacturers seeking military contracts could not be located anywhere by the committee. "A modern tower of Babel—100 thousand pages high—has been built by the military just to contain the regulatory documents pertaining to military purchasing," he noted.

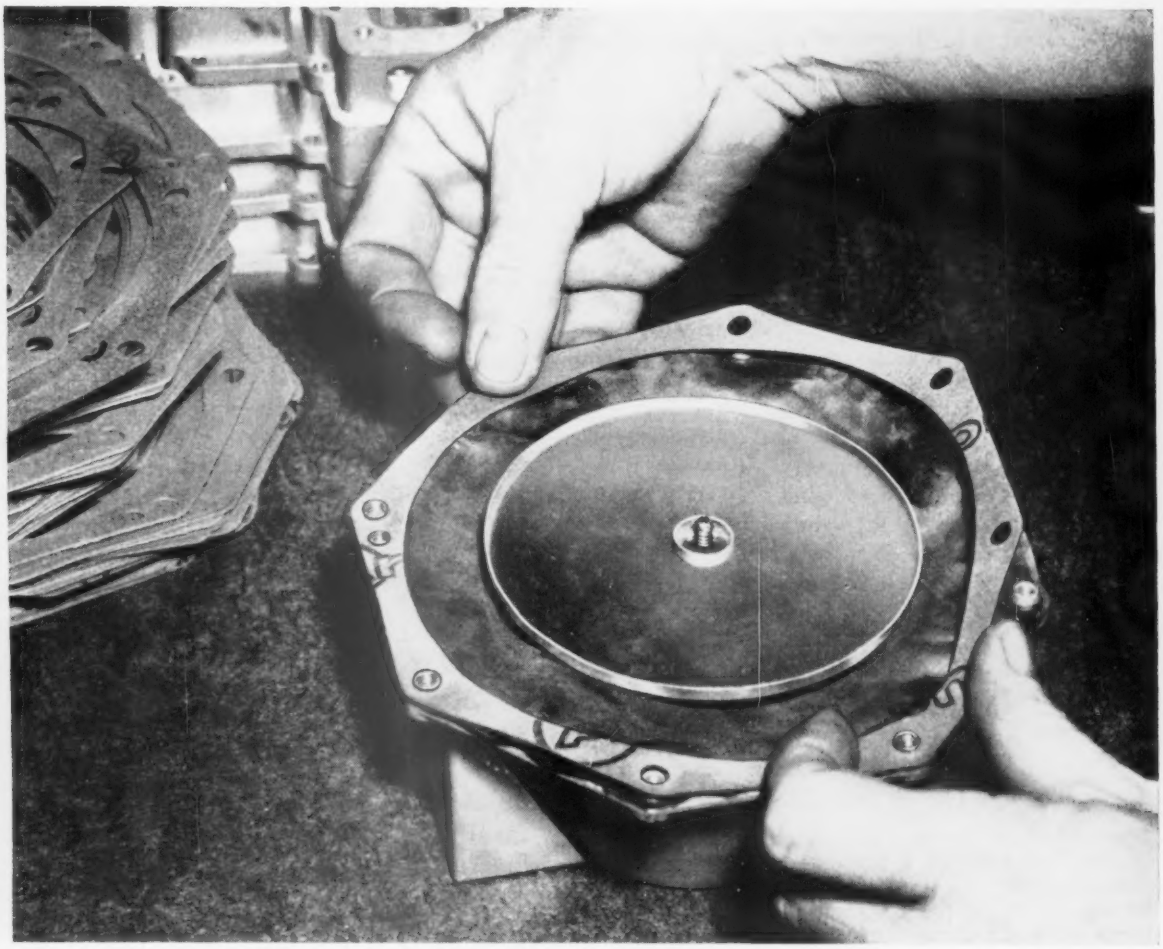
Billions of dollars could be saved, he said, "if practical, efficient purchasing methods replaced the military procurement systems which should have been retired from the armed forces with the three-masted man-of-war ship and the smooth-bore musket."

According to Senator Smathers, "The Bureau of Weapons of the Navy alone has 10 million drawings on file. Since design of complex weapon systems is in constant flux, the drawings furnished today—and filed away—are obsolete tomorrow. What price tag could we put on this all but wasted exercise?"

Armstrong Accopac gaskets meet critical requirements at low cost for Thermac gas valves

Thermac Company, a leading manufacturer of gas appliance control valves, needed an economical gasket material that would seal perfectly at low bolt pressure, meet close thickness tolerances, and be impervious to gases. They found it in Accopac CN-888, a new UL-approved resilient gasket material. In fact, Thermac found CN-888 versatile enough to be used in 90% of their gasket applications.

CN-888 conforms to flange surfaces under bolt loads as low as 800 psi. It meets a thickness tolerance of ±.003" and is stiff enough, even in the thinnest gauges, for easy installation.



a sign of quality in materials • workmanship • service

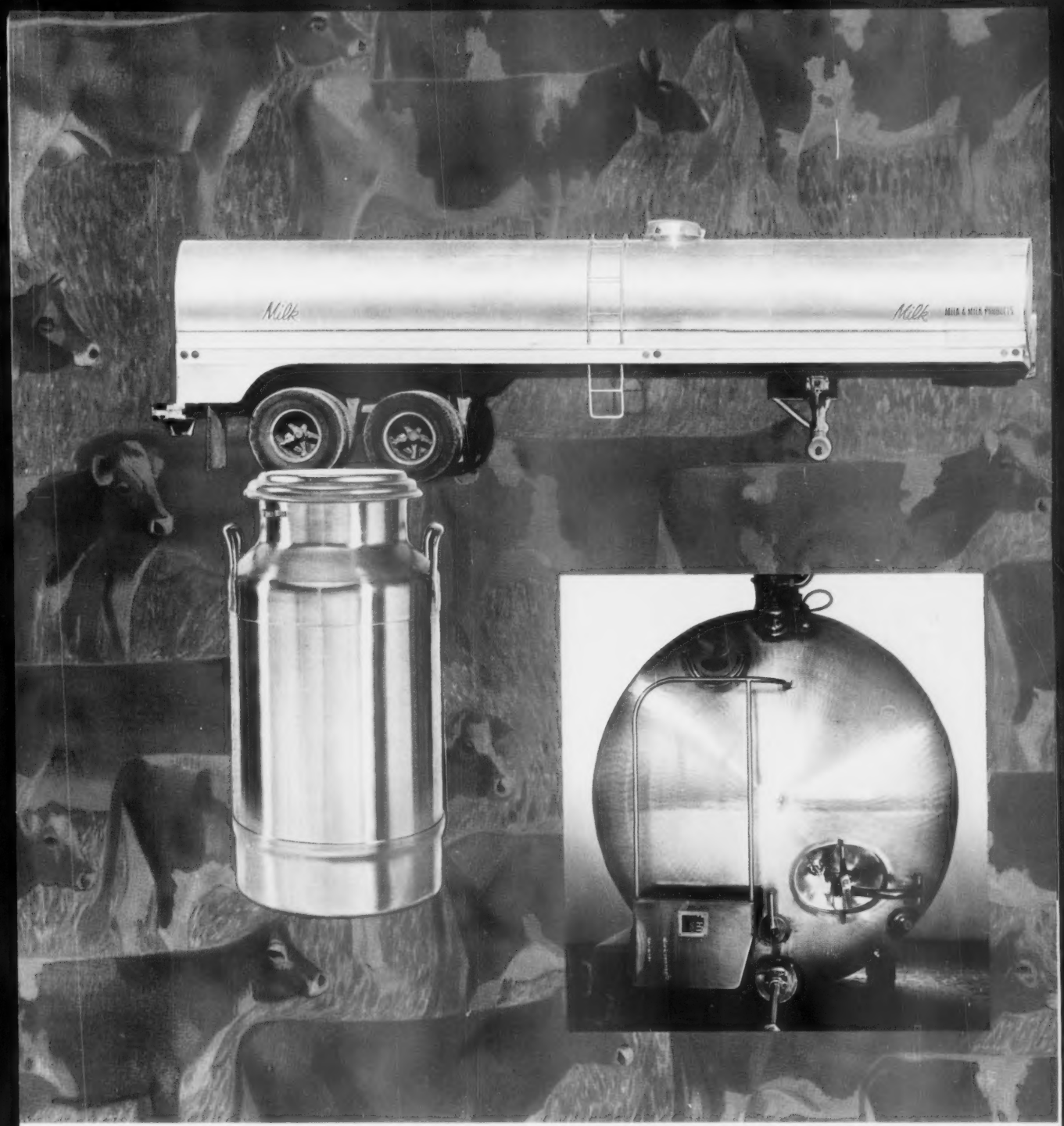
The Accopac gaskets used in Thermac gas valves are sold by an Armstrong Approved Fabricator, one of a group of a hundred independent businessmen who fabricate and distribute the Armstrong line of resilient gasket materials.

Each Approved Fabricator gives you the advantages of a local supplier: convenient, personal contact; fast service; prompt delivery. There's an Armstrong Approved Fabricator near you, and we believe you'll find him a good man to do business with. Write us for his address. Armstrong Cork Company, Industrial Division, 9211 Dague Street, Lancaster, Pennsylvania.

Armstrong
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Grade "A" down the shipping line

Few applications demand so much from a metal as those in the dairy industry. Equipment which comes in contact with milk must be completely corrosion-resistant, easy to keep hygienically clean, and practically indestructible. For years many metals were tested and today, from milk pail to bottle-filler, virtually every piece of equipment used in the handling and processing of milk is made of stainless steel.

Product reliability like this depends on uniformity of both materials and production – the reason J&L stainless is bought regularly by dairy equipment manufacturers. J&L delivers quality consistently, order after order, to help you send Grade A products down the shipping line.

Get consistent quality stainless steel from your J&L distributor, *as* you need it, *when* you need it. He can also provide technical assistance.

Stainless Steel

Jones & Laughlin Steel Corporation

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STAINLESS
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ABRASIVE SELECTION HAVE YOU CONFUSED?



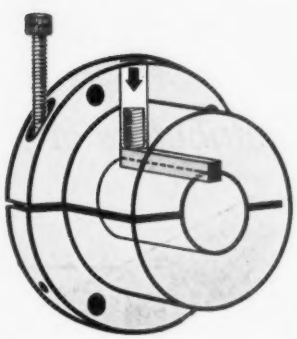
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ONE SCREW IS HALF AN ORDER

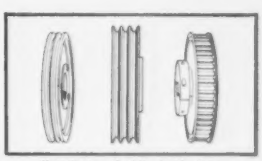


If you buy sheaves, here's a sure way of getting increased value—just buy the Worthington sheaves with the Two Golden Screws . . . they probably cost no more than your present ones.

The Golden Screw on the left is an exclusive Worthington feature that locks the hub securely on the shaft. It permits tightening the set screw without distorting the hub. And the two-piece hub-and-rim design makes installation fast and easy.

The second Golden Screw is the one at the right which is the set screw. See how it turns down to lock the key securely in place. This prevents potentially dangerous key drift.

How important are the Golden Screws? Decide their value in light of the maximum possible damage to equipment or personnel caused by a loose key. Then remember—you probably pay no more for the Golden Screws in a Worthington sheave.



Multi-Wedge Multi-V Positive Drive

Hubs with Two Golden Screws are supplied with all Worthington sheaves, such as those shown here. And you can buy the hubs alone or with special adapters for use with any shaft-mounted part you manufacture. For information, call your Worthington Distributor in the Yellow Pages. Or write Worthington Corporation, Section 79-39, Oil City, Pa.

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Specializing in industrial Champion into retail

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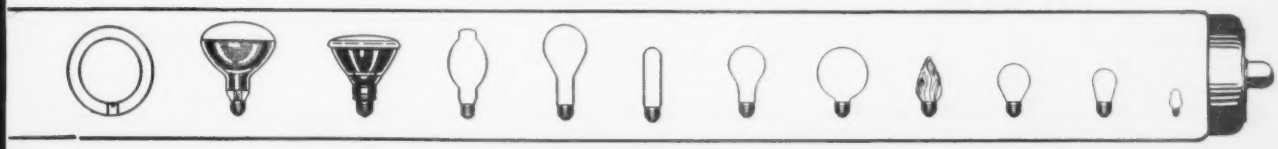
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twenty-five years.**

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discounts with those you are getting
the other three approved brands.**

. . Mr. Bill Ferris at our Lynn plant.

Fluorescent • Incandescent • Mercury Vapor • Infra-Red



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Electrical Protection goes MODERN with BUSS Fuses . . .

at Sandusky Foundry & Machine Co.
Sandusky, Ohio





THIS ALL FUSE INSTALLATION PROVIDES NEEDED HIGH INTERRUPTING CAPACITY—AND SAVED AN ESTIMATED $20,000

A new electrical system was installed at the Sandusky Foundry and Machine Co., to feed a 1000 KVA annealing furnace and plant feeders and sub-feeders.

The engineers at Universal Marine Construction Co., Sandusky, Ohio who designed and installed the job, estimated the available fault current would be in the neighborhood of 75,000 amperes.

To be sure of obtaining the needed safe and dependable protection BUSS Hi-Cap and FUSETRON dual-element fuses were installed.

DEPENDABLE PROTECTION AT A $20,000 SAVING

Including the cost of fuses and switches, an estimated $20,000 was saved over what it would have cost to use mechanically operated devices with an interrupting rating of only 75,000 amperes.

This BUSS and FUSETRON fuse installation also permitted the electrical system to be co-ordinated, so outages on feeder and sub-feeder circuits can be limited to the circuit on which trouble occurs.

ELECTRICAL SYSTEM NOT DISTURBED WHEN TRANSFORMER CAPACITY WAS INCREASED

Shortly after the original installation, additional transformer capacity was added,—bringing the available fault current to approximately 150,000 amperes.

No change in the main service panels was needed, however, as the 200,000 amp. interrupting capacity of BUSS Hi-Cap fuses is still adequate to assure safe protection.

Neither was a change required in the protection of feeder circuits because FUSETRON fuses have adequate interrupting capacity to safely handle any fault that might occur on them.

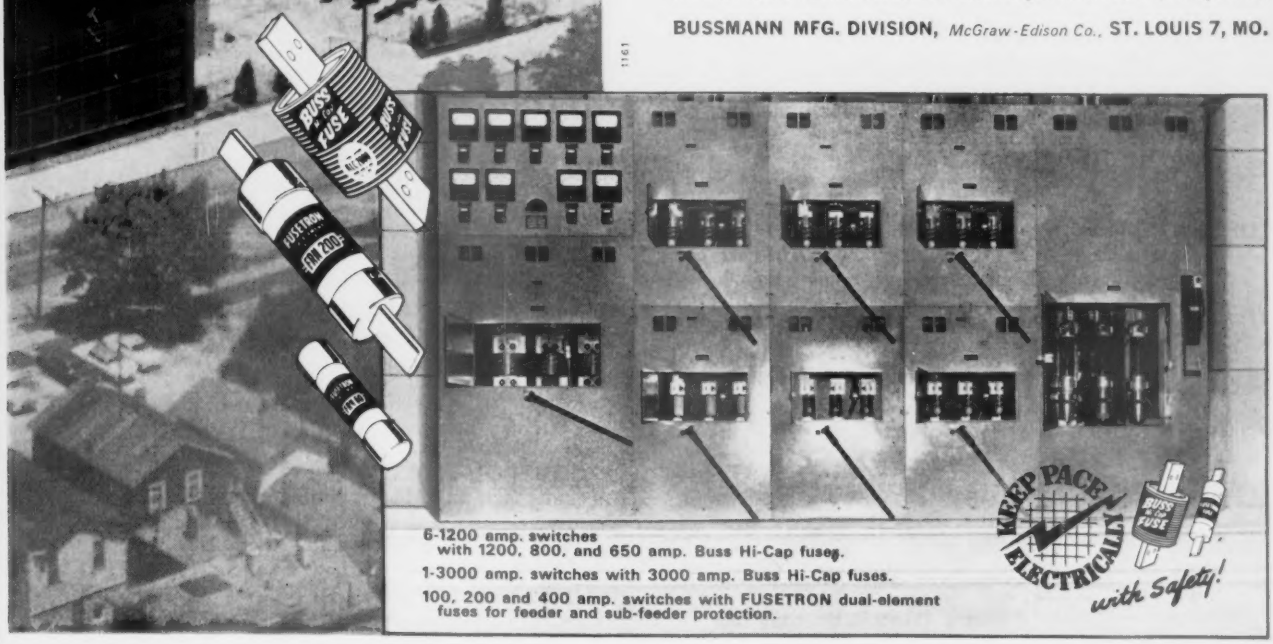
SAFE PROTECTION REMAINS SAFE

After years of inactivity, BUSS Hi-Cap and FUSETRON fuses provide the same safe, accurate protection if called upon to open as they would on the day installed. Dust, fumes, corrosion or age cannot increase the capacity of fuses or lengthen their blowing time.

For more information on how to select the proper fuse, write for the new BUSS booklet . . . *Basic Protection for Electrical Power Systems.*

BUSSMANN MFG. DIVISION, *McGraw-Edison Co.,* **ST. LOUIS 7, MO.**

1161



6-1200 amp. switches with 1200, 800, and 650 amp. Buss Hi-Cap fuses.

1-3000 amp. switches with 3000 amp. Buss Hi-Cap fuses.

100, 200 and 400 amp. switches with FUSETRON dual-element fuses for feeder and sub-feeder protection.

Information For Your Catalog Files

BALL BEARINGS

A 48-page miniature and instrument ball bearing catalog. Pictures and describes various testing functions. Graphs depict specific bearing characteristics. Includes data on the design, development, engineering, and production of these precision products.

New Departure

Write No. 1 on Information Card—Last Page

BALL VALVES

Catalog No. 1200-A provides detailed information on manually and pneumatically operated ball valves. Describes valves ranging in size from ¼" to 12" with screwed, socket weld, and flanged end models. Illustrates a variety of special valves, and gives dimensions, weights, material specifications, and pressure-temperature rating charts.

Hills-McCanna Company

Write No. 2 on Information Card—Last Page

CAPACITORS

A four-page catalog that describes dc tantalum electrolytic capacitors. Gives characteristics for 31 ratings especially suited to low voltage transistor applications. Shows typical performance curves, outline drawings, and data on five case sizes.

General Electric Company

Write No. 3 on Information Card—Last Page

CONTROL CABLES

A four-page catalog covering load requirements, selection of proper core size, and other design requirements for push-pull control cable applications. Lists dimensional data, construction details, and recommended input loads for three sizes—3/22", 1/8", and 3/16" cores.

Morse Instrument Co.

Write No. 4 on Information Card—Last Page

CONVEYORS

A four-page brochure describing how to cut costs with conveyors. Demonstration photos show a simple type of low-accumulation-pressure live roller, clamp type carton stackers, and high speed continuous vertical lifts.

Standard Conveyor Co.

Write No. 5 on Information Card—Last Page

FASTENERS

A 32-page booklet listing, illustrating, and classifying a line of fastening products. Covers 25,000 sizes, styles, and types in stainless steel, aluminum, brass, bronze, and Monel.

Albany Products Company Inc.

Write No. 6 on Information Card—Last Page

GEARS

A four-page brochure covering custom gears and speed reducers. Includes a condensed specification chart. Full-color photographs illustrate gear production machines.

Ohio Gear Company

Write No. 7 on Information Card—Last Page

LABORATORY SUPPLIES

A 936-page catalog of laboratory supplies, equipment, and instruments. Describes and illustrates items alphabetically. Includes a comprehensive, cross-referenced subject index.

LaPine Scientific Company

Write No. 8 on Information Card—Last Page

LIFT TRUCKS

Catalog BU-680 describes engineering, construction, and operating features of seven new lift trucks. The 24-page illustrated bulletin is divided into sections for easy reference.

Allis-Chalmers Manufacturing Co.

Write No. 9 on Information Card—Last Page

METER-RELAYS

Bulletin No. 5 describes operating features of locking contact meter-relays. Covers isolated coils, response time and damping, overload protection and control components. Includes dimensions, sensitivities, case styles, and prices.

Assembly Products, Inc.

Write No. 10 on Information Card—Last Page

MOTORS

A catalog describing 25 ac and dc precision motors. Illustrates sizes from .001 to 7.5 hp, single phase or polyphase, with a full range of enclosures. Includes governors, gear trains, and brakes. Gives input and output voltage, design standards, and insulation.

Indiana General Corporation

Write No. 11 on Information Card—Last Page

POWER CONTROL UNITS

An eight-page bulletin presenting characteristics, operating details, and applications of power control units. The illustrated publication, No. 4-61, includes photographs, characteristic curves, and circuit diagrams.

Magnetics Inc.

Write No. 12 on Information Card—Last Page

WHEN YOU REQUIRE THESE PROPERTIES IN A METAL

PHYSICAL & MECHANICAL PROPERTIES

High electrical conductivity
High corrosion resistance
High thermal conductivity
High softening and melting temperature
Nonmagnetic

FABRICATING PROPERTIES

Good to excellent hot and cold workability
Can be stamped
deep drawn
spun
drilled
tapped
threaded

JOINING PROPERTIES

Can be soldered
brazed
welded

FINISHING PROPERTIES

Can be buffed
polished
tumbled
plated
enameled
painted or lacquered
bright dipped

specify HUSSEY COPPER and COPPER ALLOYS

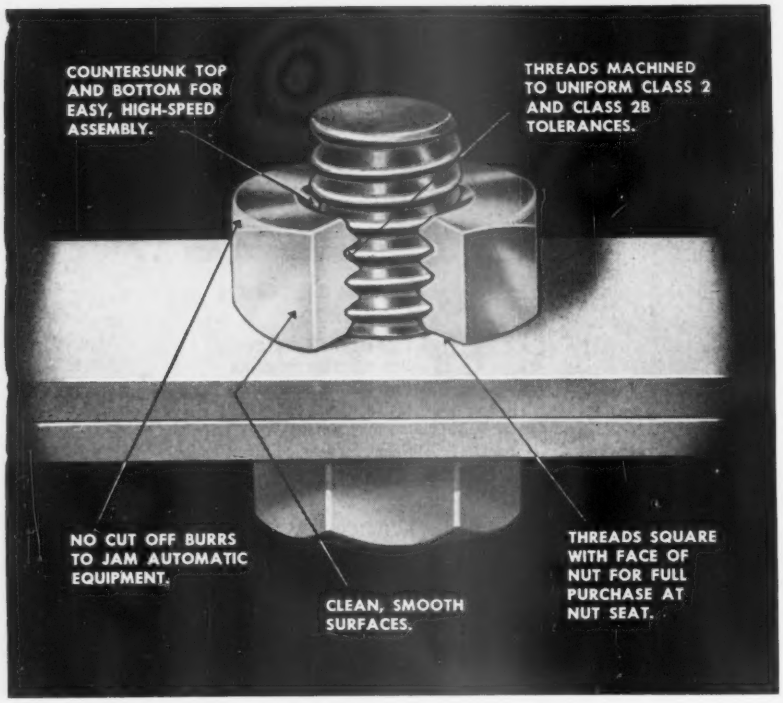
QUALITY CONTROLLED FROM MINE TO MARKET
HUSSEY

AVAILABLE FROM 7 WAREHOUSE STOCKS OR DIRECT FROM MILL
SHEET • ROLLS • STRIP • RODS
PIPE • TUBING • WIRE • SHAPES

MADE IN U.S.A. TO THE STANDARDS OF AMERICAN INDUSTRY

C. G. HUSSEY & COMPANY · Division of Copper Range Co.
2840 SECOND AVE. · PITTSBURGH 19, PA.

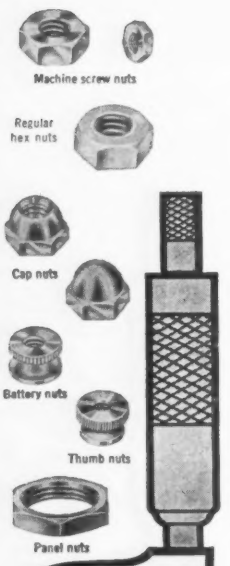
For More Facts Write No. 177 on Information Card—Last Page



CORNELL

"Machined from the Bar" BRASS NUTS

REDUCE ASSEMBLY COSTS



"Machined from the Bar" brass nuts can save you countless production dollars yearly by speeding your assembly operations and reducing downtime and rejects to a minimum. These precision nuts handle easily, spin on smoothly, tighten securely and, once in place, *stay in place.*

We are specialists in *"Machined from the Bar"* brass nuts. *This is our only product.* Our method of manufacture assures that every nut is a precision product held to close tolerances and checked with go and no-go gauges. This uniformity speeds hand operations and permits trouble-free performance of portable and hopper-fed, high-speed nut setters.

Remember, *"Machined from the Bar"* brass nuts are available *at no extra cost.* Standards are available "off the shelf", shipped the same day the order is received.

Call, wire or write today: Gene Carroll, Yonkers 8-9400. Teletype, Yonkers 4356.

Remember . . ."Machined from the Bar" at no extra cost!

CORNELL
MANUFACTURING COMPANY, INC.
14 SAW MILL RIVER ROAD, YONKERS, NEW YORK

For More Facts Write No. 178 on Information Card—Last Page

Catalog Files

RELAYS

A six-page catalog describing a wide variety of industrial and commercial relays. Provides specifications, operating information, ordering data, and general applications.

Hillburn Electronics Corporation

Write No. 13 on Information Card—Last Page

RETAINING RINGS

Catalog No. 61P contains complete information and engineering specifications on internal and external retaining rings. Covers rings for axial and radial assembly—from sizes .040″ to 4.125″. Also describes axial assembly rings, pliers, and accessories.

Industrial Retaining Ring Company

Write No. 14 on Information Card—Last Page

STAINLESS STRIP STEELS

A 32-page brochure on stainless strip steels. The illustrated bulletin provides a guide to correct selection of various stainless grades for specific applications. Provides data on analyses, heat treating, and finishing. Includes weight tables.

Superior Steel

Write No. 15 on Information Card—Last Page

SWITCHGEAR

A three-color, 40-page catalog describing 4.16- and 13.8-kilovolt switchgear and circuit breakers. Bulletin No. 2800-2B provides drawings, sketches, photographs, and charts. Includes a simplified specification guide.

I-T-E Circuit Breaker Company

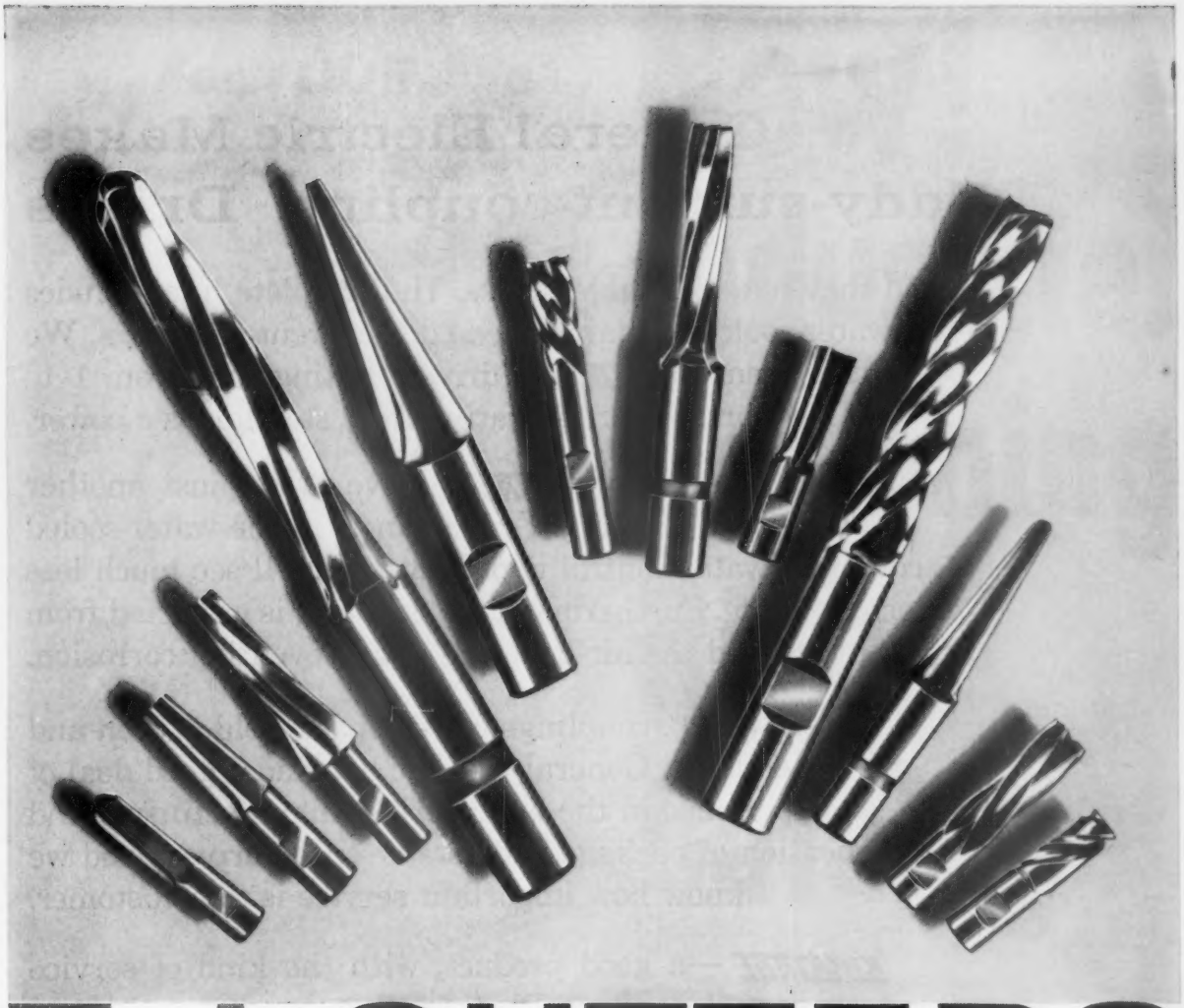
Write No. 16 on Information Card—Last Page

V-BELT DRIVES

Bulletin A695A explains advantages of V-belt drives for virtually all industrial applications. The 42-page illustrated handbook includes Dyna-V drives in three basic sizes for horsepowers ranging from fractional to 1500. One section covers explanations, charts, and nomographs useful in designing special drives.

Dodge Manufacturing Corporation

Write No. 17 on Information Card—Last Page



T-J CUTTERS

Designed To Do *More* Jobs . . . Produce *More* Work . . . Save *More* Production Time and Cost

Proved, definitely, as the cutting tool for the die-sinking industry, T-J now offers an expanded cutter line for the precision milling of today's high speed, high production manufacturing. The new line has been designed to do more, as well as add to individual cutter life. Cutters feature a high helix angle, double back-off, right or left hand spiral, and flats on the shanks for set screw type chucks. Write today for Catalog No. 259 and complete details to The Tomkins-Johnson Co., 2425 W. Michigan Ave., Jackson, Mich.

Representation in all major areas, including Canada.

T-J

TOMKINS - JOHNSON

RIVITORS...AIR AND HYDRAULIC CYLINDERS...CUTTERS...CLINCHORS

For More Facts Write No. 179 on Information Card—Last Page

General Electric Makes Eddy-current-coupling Drives

And they're dependable drives. The complete line includes water-cooled and air-cooled eddy-current couplings. We call them KINATROL* drives. Ratings are from 1 to 150 horsepower, operating from standard a-c power.

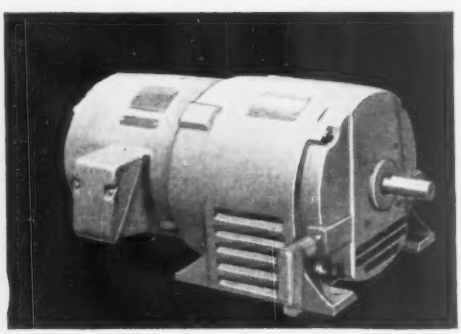
A General Electric KINATROL drive is not just another eddy-current coupling. For instance, in the water-cooled coupling, water control is packaged. You'll see much less external piping. Furthermore, the coupling is protected from flooding—and the air gaps are dry, preventing corrosion.

KINATROL couplings are compact, field proven and dependable. General Electric has had a good deal of experience in the engineering, manufacturing, and application of packaged adjustable-speed drives. And we know how important service is to a customer.

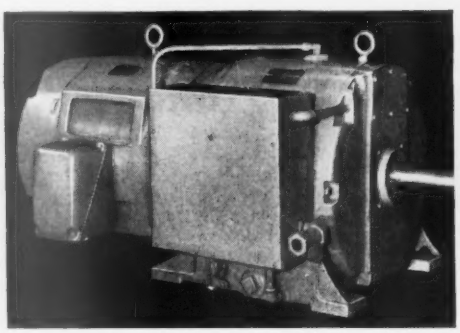
KINATROL —a good product, with the kind of service you can depend on. Please call your nearest General Electric Sales Office for further details.

*Trademark of General Electric Company

821-07



AIR COOLED, 7-1/2 to 100 HP



WATER COOLED, 25 to 150 HP



AIR COOLED, 1 to 5 HP

DIRECT CURRENT MOTOR AND GENERATOR DEPARTMENT

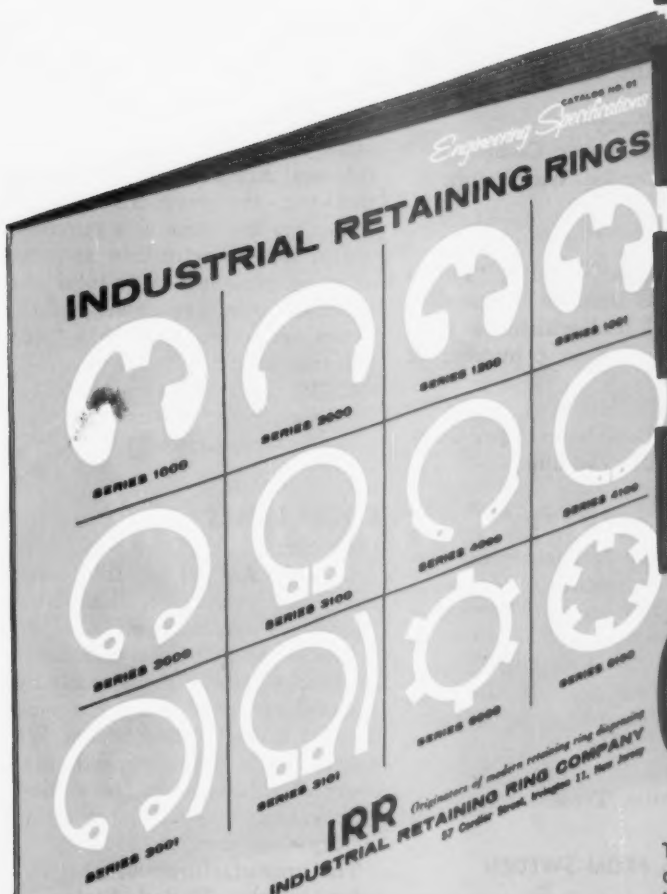
GENERAL ELECTRIC

ERIE, PENNSYLVANIA

For More Facts Write No. 180 on Information Card—Last Page

For YOUR File . . .

New! Industrial Retaining Ring Catalog



This new Industrial Retaining Ring Catalog, No. 61, contains complete information and engineering specifications on IRR Internal and External Retaining Rings—both for axial and radial assembly—from sizes .040" to 4.125". It also has information of the exclusive, time-saving, IRR "PRE-STACKED" Axial Assembly Rings as well as information on IRR Pliers and Accessories.

The Industrial Retaining Ring Catalog is easy to work with and from. It will greatly assist in design, purchasing and production.

IRR

Originators of modern retaining ring dispensing

INDUSTRIAL RETAINING RING COMPANY

57 Cordier Street, Irvington 11, New Jersey

Use for FREE Samples and Catalog

INDUSTRIAL RETAINING RING COMPANY
57 Cordier Street, Irvington 11, N. J.

Please, send me samples of Industrial Retaining Rings and the new IRR Catalog No. 61

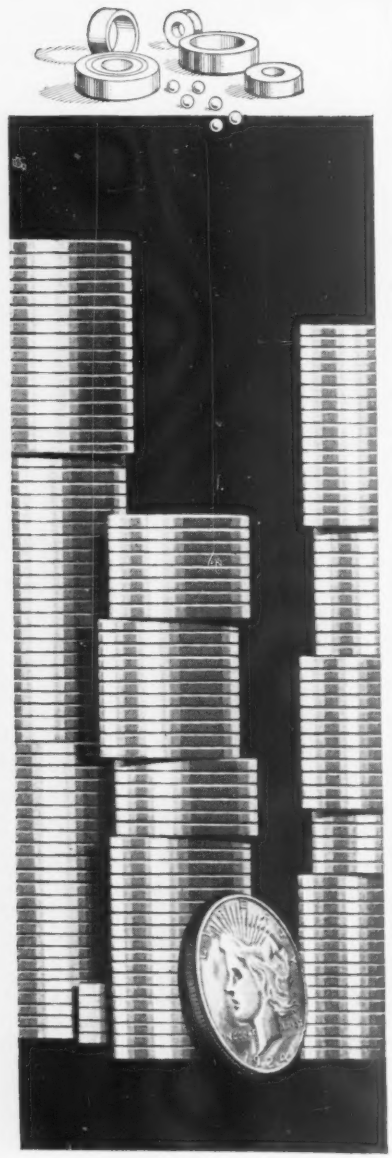
Name ..... Title .....

Company .....

Street .....

City ..... Zone ..... State .....

For More Facts Write No. 181 on Information Card—Last Page



Today's big values in instrumen bearings are the tiny but extremely precise bearings made by REED produced in tolerances up to ABEC 9. They are also available in ABEC 7 and 5. In bearings up to ⅝ inches OD REED's centerless grinding operations provide exacting control of tolerances and operating characteristics. So, precision and value give you two important reasons for listing REED among your approved sources for instrument bearings. 6110

REED

REED INSTRUMENT BEARING COMPANY
Los Angeles, California
Div. of SKF Industries, Inc.
Write No. 182 on Information Card—Last Page

Letters To The Editor

VALUABLE FORMS

Dear Sir:

The "Forms Forum" is a good feature of your magazine and it has been the source of several useful ideas.

J. E. Frary
Weyerhaeuser Company
Cosmopolis, Washington

Dear Sir:

Your regular feature, "Forms Forum," has been an informative and helpful tool which we have used as a guide in a number of instances.

R. W. Balfour
Union Bag-Camp Paper Corp.
Franklin, Virginia

Dear Sir:

PURCHASING Magazine and particularly the feature on forms is well read and useful. The reason for this interest is that we have been carefully observing "Forms Forum" as we are not sure that our present forms are best.

J. W. Taylor
Sanford-Day Corp.
Knoxville, Tenn.

BOUQUETS FROM SWEDEN

Dear Sir:

From your issue of March 14, 1960, we have noticed with interest and enjoyed very much the information about an organized traffic department ("When You Need More Help on Traffic").

Would you please advise us if there is any literature on this subject suitable for Swedish circumstances? There are about 3000 persons employed in our firm. Our traffic department has 15 persons.

I. Hull
AB Bolinder Munktell
Eskilstuna, Sweden

MEASURING PURCHASING COSTS

Dear Sir:

I am very much interested in the series of articles on measuring administrative efficiency in the purchasing department by Dean Ammer.

In the first article ("How Much Should Purchasing Cost?", p. 70, August 28) you use the cost per purchase order as a basis for comparison.

Our company issues orders for extended deliveries which in some instances require revisions, and in some instances we issue monthly releases. According to my way of thinking, the revisions and releases are the same as a purchase order, and therefore, in arriving at a comparable cost, I total our purchase orders, revisions, and releases and come up with a "cost per transaction."

W. T. Gabbett
Caterpillar Tractor Co.
Aurora, Illinois

STICKY LABELS

Dear Sir:

In your August 28, 1961 issue (page 29) you list certain "New Products From Europe."

One of the items you mention—the Sticky Label Printer made by Novacel in France—is not a new product in the United States. We purchased a hand-worked machine of this type in November, 1959 and have been using it in our factory since then.

The manufacturer of this labeler in the United States is the Dymo Corporation, Berkeley, Calif.

Belinda U. Guerrera
Bridgeport, Conn.

DOUBTS LUMBER REPORT

Dear Sir:

Your special commodity report on lumber (Sept. 11 issue, pg. 27), including your short range outlook, is full of holes.

First, your reference to fir prices and an increase in them is not at all true. I trust the $62 figure to which you refer deals with green dimension.

The nation's wholesalers and two of the lumber reporting agencies (Biddle and Random Lengths), disagree with your statement on rising prices. Random length green fir prices have fallen at least $3 per thousand

(Please turn to page 48)



Your most demanding parts requirement is a welcome challenge to us . . . and to give this statement action, we fly to serve you in the shortest elapsed time.

Consult with our design and engineering staff on the correct mold design, material and subsequent molding procedure. You may decide that expensive metal parts for your end product can be replaced at amazing cost savings by the correct thermoplastic materials, molded especially to meet your requirements.

Many examples in our files show the cost saving and operation-improving values inherent in molded thermoplastic parts. Your request will bring to you actual records which show the profitable handling of projects similar to yours at Quinn-Berry where "The Unusual is Routine."

MARBLEHEAD, Mass.
Joseph Leader
38 Ralph Road
Turner 4-3484

DETROIT 35, Mich.
W. J. Montgomery Co.
16577 Meyers Road
Diamond 1-3454

EAST ROCHESTER, N. Y.
Dynatherm, Inc.
607 West Commercial Street
Phone: Ludlow 600-80

MILWAUKEE 13, Wis.
John Weiland, Jr.
7105 Grand Parkway
Greenfield 6-7161

ARDMORE, Pa.
Austin L. Wright Co.
P. O. Box 561
1 W. Lancaster Ave.
Midway 2-5113



WE FLY TO SERVE YOU FASTER!

QUINN-BERRY CORP.

2609 WEST 12TH STREET, ERIE, PA.

CUSTOM MOLDERS OF ALL TYPES OF THERMOPLASTICS

For More Facts Write No. 183 on Information Card—Last Page



This easy-opening reusable aluminum top, developed by the Central States Can Corporation, is now available on Cleveland Container fibre cans — a natural for packaging spare parts as well as a wide range of products! It protects the contents from air, moisture and dust. The peeling off of the tabbed seal leaves a smooth edge permitting a snug fit when the top is replaced.

Containers Engineered to Exact Product Needs!

Durable fibre containers can be made to almost any specification — *and at a surprisingly low unit cost!* Moistureproof, greaseproof, and anticorrosive liners for added protection. A wide choice of labels for distinctive identification.

Four Diameters Ready for Immediate Delivery!

An important advantage exists for products which can be packaged in containers with inside diameters of 2 1/16", 2 3/8", 3 3/32", and 3 7/8"—four of the most popular sizes.

Write for our latest Packaging Brochure.

THE

CLEVELAND CONTAINER

COMPANY

Plants and Sales Offices: Cleveland, Chicago, Memphis, Dallas, Los Angeles, Plymouth, Wis., Jamesburg, N. J., Greensboro, N. C.

6201 BARBERTON AVE. • CLEVELAND 2, OHIO

ALL-FIBRE CANS • COMBINATION METAL AND PAPER CANS
SPIRALLY WOUND TUBES AND CORES FOR ALL PURPOSES

CLEVELAND CONTAINER CANADA, LIMITED
Plants & Sales Offices: Toronto & Prescott, Ont. • Sales Office: Montreal

Sales Offices: Detroit, New York City, West Hartford, Rochester, N. Y., Washington, D.C.

•

Abrasive Division at Cleveland

For More Facts Write No. 184 on Information Card—Last Page

Letters

(*Continued from page* 46)

since the first of August and transits have been off as much as $7 per thousand. Specified mill shipment on straight cars of 2x4 – 12', 14' and 16' in green fir are off $6 per thousand since July 1.

We who are close to the lumber business see no short range increase in price unless you are considering the normal expected March and April push of 1962 in your outlook.

The reference to a $70 March high is rather vague also. If you are referring to green random length fir, then anyone paying $70 was getting clipped from $5 to $7 per thousand.

I feel your special commodity report left something to be desired. It had its good points but didn't do much for lumber buyers.

Nicholas J. Vella
Inland Homes Corporation
Piqua, Ohio

N.A.P.A. MEMBERSHIP

Dear Sir:

I have been reading your magazine for several months now and have found it very interesting. You seem to include a variety of information concerning the activities of various purchasing organizations but very little on how to become a member.

William R. Collins
Georgia Institute of Technology
Atlanta 13, Georgia

MAKES US FEEL PROUD

Dear Sir:

Thank you very much for sending reprints of "General Electric's Purchasing and Value Analysis Program" (May 8, 1961 issue) and PURCHASING Magazine's 1960 editorial index.

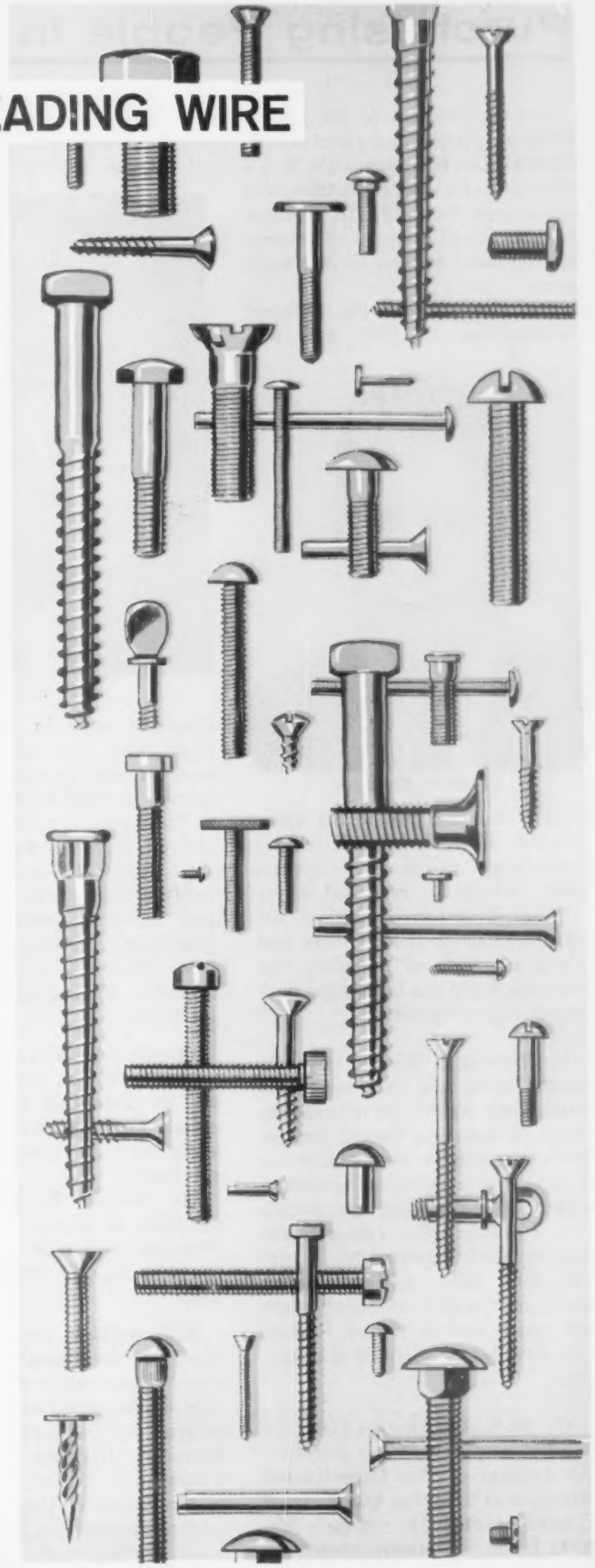
During the course of my research for a bibliography on value analysis, it appears that your magazine features more articles on this subject than any other periodical.

You are to be commended for your efforts.

P. R. Herndon
The Martin Company
Orlando, Florida

ANACONDA COLD-HEADING WIRE

take a new look at the way you're making these parts...



Cold-heading and upsetting operations require specific qualities in wire to obtain the optimum in quality and the most favorable unit cost.

Anaconda Cold-Heading Wire has those qualities . . . a greater range of alloys . . . a wider range of finer characteristics to satisfy almost any requirement for a cold-headed part. These include corrosion resistance, toughness, tensile and fatigue strengths, electrical conductivity, and good color matching with other metals.

And to further improve the qualities of Anaconda Cold-Heading Wire, new fabricating methods have been developed to produce wire with a superfine-grain structure and greatly improved physical and mechanical properties. Today these new manufacturing methods can be applied to both brass and phosphor bronze wire.

Certainly it will pay you to take a new look at the way you are making these parts. Among the many alloys available in cold-heading wire form, Anaconda alone has Formbrite®, Duraflex®, and Everdur®.

Publication B-33 gives complete details. Write for your copy—or call on our Metallurgical Department to help you with your problems. Anaconda has specialists in this field to help you at any time. See your Anaconda representative, or write: Anaconda American Brass Co., Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.

61-1149

COPPER AND COPPER ALLOY COLD-HEADING WIRE

products of

ANACONDA

AMERICAN BRASS COMPANY

For More Facts Write No. 185 on Information Card—Last Page

Purchasing People In The News

The appointment of **Mr. Leo F. Kretz** as purchasing agent for **A. Kimball Co., Inc., Brooklyn, N. Y.,** a division of **Litton Industries,** was announced recently. He replaces Mr. H. Scoville who has become management analyst for the company.

Mr. Kretz joined the Kimball organization in 1953 and was



Leo F. Kretz

named assistant purchasing agent in 1960. He will head Kimball's centralized purchasing department, which is responsible for buying all materials used in the manufacture of tickets, tags and labels as well as materials for price marking and integrated data processing equipment.

Mr. Robert L. Wilson, formerly senior buyer, has been appointed purchasing agent for **Packaging Corp. of America, Grand Rapids, Mich.** He will be responsible for a three-city purchasing operation which includes the company's Grand Rapids office, research and development department, a paperboard mill, folding carton plant, corrugated container plant and truck line in Grand Rapids, and a container plant in Kalamazoo.

Mr. R. E. Walton has been appointed manager of the purchasing division of **The Consolidated Mining and Smelting Company of Canada Limited.** He succeeds **Mr. A. L. Irwin,** who retired recently.

Mr. Walton graduated in mining engineering at the University of Alberta. His early service with



R. E. Walton

Cominco was in mine survey work, and later as a pilot engineer on mining exploration in the North. He held supervisory posts in the company's chemical plants, and in 1938 entered purchasing as a technical buyer. He became assistant purchasing agent in 1946, and assistant manager of the purchasing division in 1957.

Mr. Walton is a member of the Canadian Purchasing Agents Association.

Standard Forgings Corporation, Chicago, Ill., has named **Mr. Harold W. Campbell** and **Mr. Raymond Foss** general purchasing agent and purchasing agent respectively.

Mr. Gerald D. Bassett, vice president in charge of purchases, who has been with the company for 45 years, will retire in November.

R. Bruce Reid, general purchasing agent for **Bowaters Southern Paper Corporation** and **Bowaters Engineering and Development Incorporated, Calhoun, Tenn.,** and **Bowaters Carolina Corporation, Catawba, S. C.,** has been named to the Board of Directors of Bowaters Engineering and Development Incorporated.

A native of Montreal, Canada, Mr. Reid joined Bowaters Southern in 1952 as Purchasing Agent and was made General Purchas-



R. B. Reid

ing Agent in 1957 for Bowaters Southern and Bowaters Carolina. He has also been the Bowaters Engineering and Development Incorporated purchasing agent since it was formed in 1957.

Mr. Morris Zatlyn has become purchasing agent of the **Bertram Yacht Company, Miami, Florida.**

Mr. Zatlyn, who has had 30

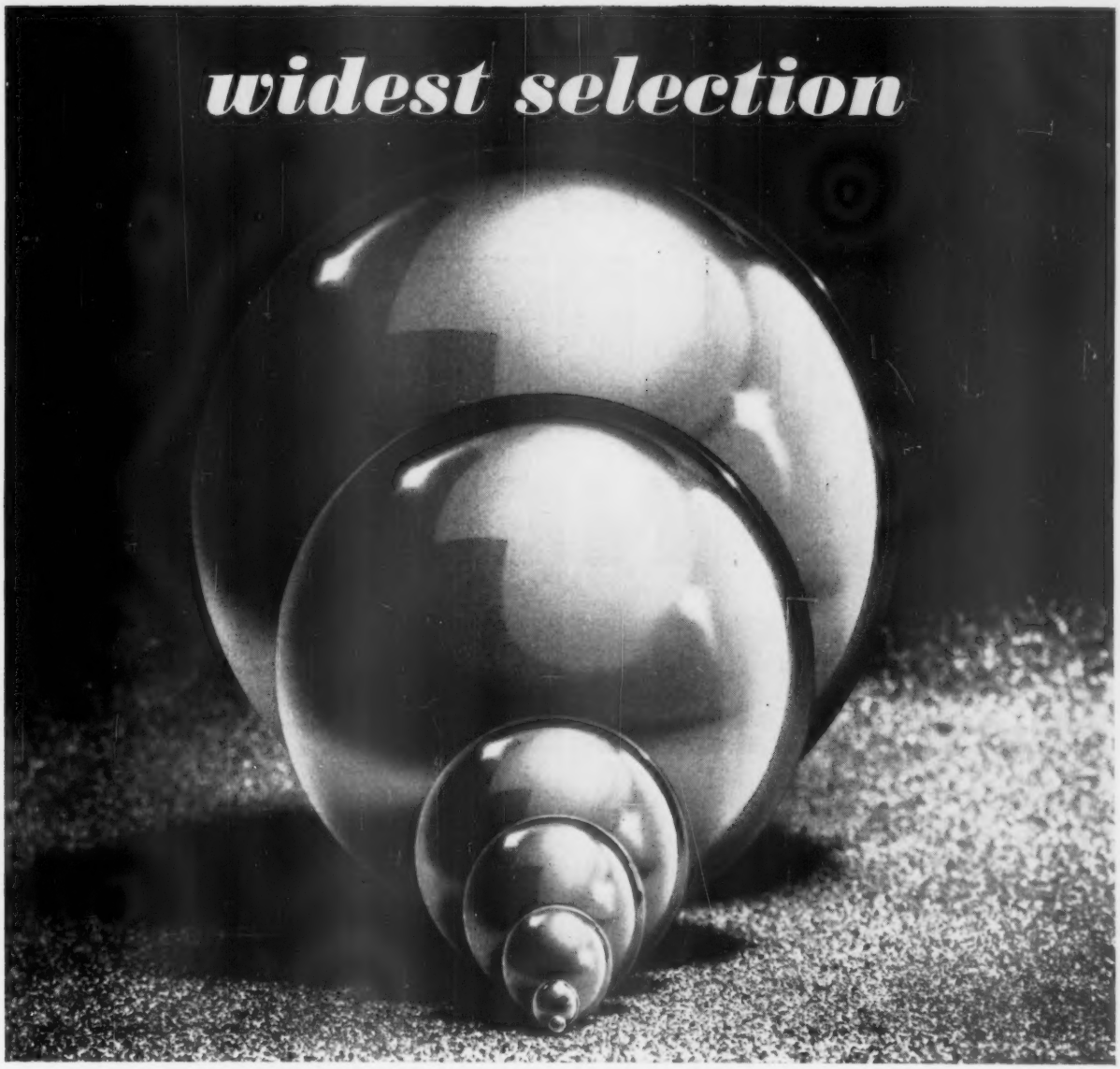


Morris Zatlyn

years of buying experience, attended the U. S. Coast Guard Academy and Temple University, and served in the U. S. Coast Guard in the European Theatre during World War II.

FEEL THIS NEW CHAMPION® BOND

This is 20 lb. Champion Bond



STANDARD METAL BALLS IN SIZES FROM 1/16" TO 4½"

Hoover Quality balls are available in chrome, stainless and carbon steels, brass, bronze and monel . . . in a wide range of standard sizes.

Chrome steel *Micro-Velvet* balls, accurate within millionths of an inch, are widely used for precision applications. To solve rust and corrosion problems, brass, bronze, monel or stainless steel balls are often recommended. Commercial type carbon steel balls meet low cost requirements where applications do not require a through-hardened ball. Balls of special metals and finishes are also available.

Modern manufacturing methods and quality control techniques assure uniform *Hoover Quality* at all times. Dual manufacturing facilities assure ample capacity to meet the largest requirements.

Micro-Velvet is a Hoover Trademark.

hoover quality balls

HOOVER BALL DIVISION
P. O. Box 381, Middletown, Ohio
hoover ball and bearing company

Hoover Ball Division, Hoover Ball and Bearing Company
P. O. Box 381, Middletown, Ohio
Please send me the Hoover Ball Catalog.

Name_____ Title_____
Company_____
Address_____
City_____ Zone_____ State_____

PM-11

For More Facts Write No. 187 on Information Card—Last Page

NEW!

OILITE®

CYLINDER LINERS



Eliminate machining costs . . . reduce ring wear . . . cut oil consumption 66⅔%.

Approved by leading manufacturers of both 2 cycle and 4 cycle engines after numerous 500 hour, full throttle tests.

OILITE CYLINDER LINERS represent 3½ years of intensive engineering development work by the Amplex Division, Chrysler Corporation. The final break-through came less than a year ago with the successful formation of a new OILITE alloy (W-982). Now, thousands of test hours later, three conclusive facts are clear:

1. **OILITE CYLINDER LINERS** reduce oil consumption by as much as 66⅔%—and contribute to longer engine life.
2. **OILITE CYLINDER LINERS** reduce piston ring wear dramatically. For example, after a 500 hour test at full throttle, the machining marks on the rings are still clearly visible.
3. **OILITE CYLINDER LINERS** are produced as a precision part that may require only honing; therefore, a significant saving can usually be realized—especially in smaller horsepower range engines.

If you manufacture any type of internal combustion engine it will pay you to investigate OILITE CYLINDER LINERS immediately.

Reg. Trade Mark

AMPLEX

DIVISION CHRYSLER CORPORATION, DETROIT 31, MICH.

A CHRYSLER OILITE PRODUCT

Aluminum of cylinder wall infiltrates wall of liner and bonds it in place.







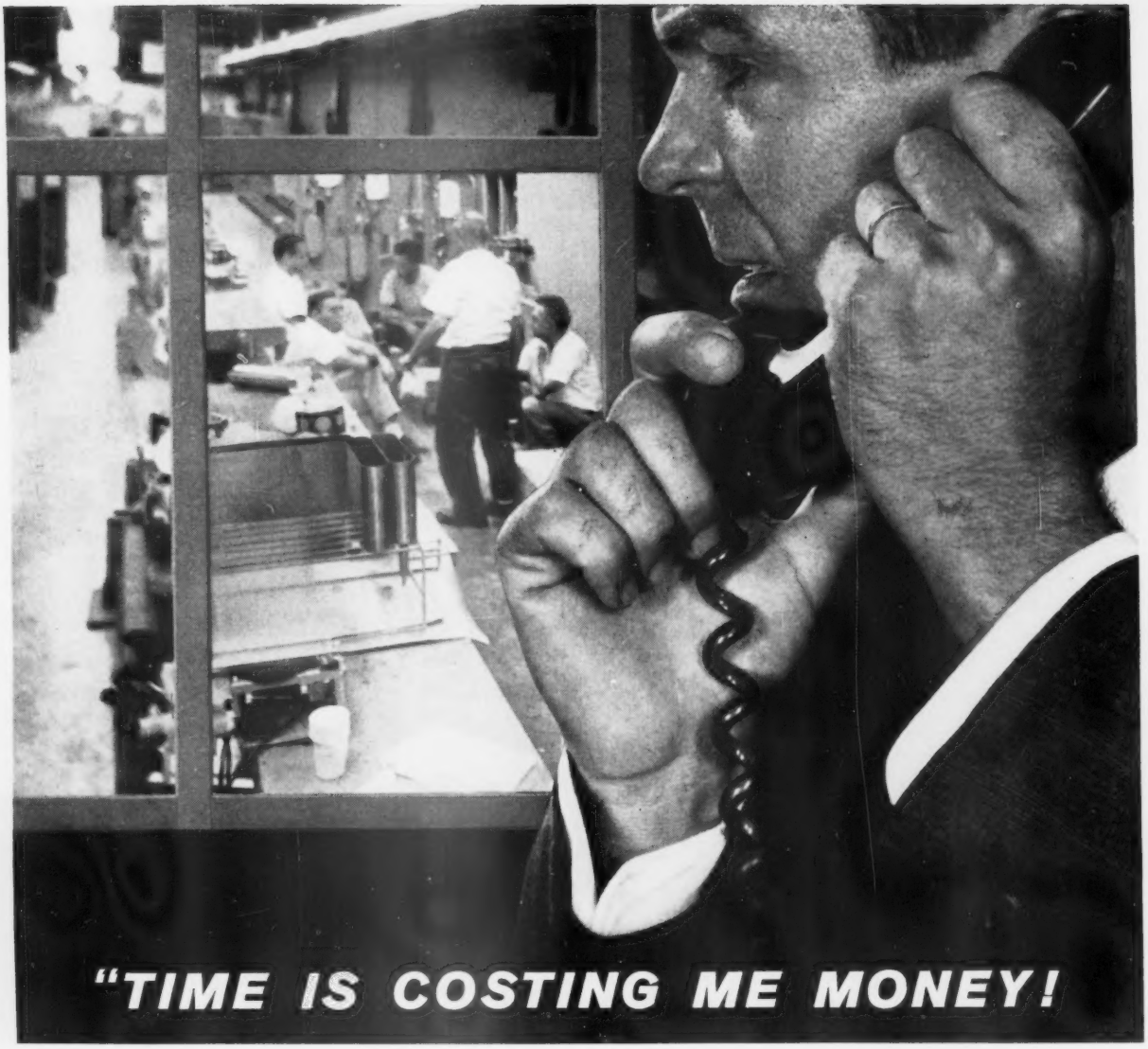




CHIEF ENGINEER OF A LEADING MANUFACTURER SAYS:

"Oilite cylinder liners reduce our cost. But even if they did not, we'd use them because of the way they reduce ring wear and oil consumption and give us a better product."

For More Facts Write No. 188 on Information Card—Last Page



SEND IT UNITED AIR FREIGHT!"

If your cargo is a tiny but vital piece of machinery, a perishable item, or heavy equipment . . . whenever you can't afford delay . . . call United Air Freight Specialists. United will speed your shipment to its destination with fast, one-carrier dependability.

Only on United do you get the advantage of the world's largest jet fleet . . . and your cargo can be carried on every flight. In addition a fleet of Mainliners® and Cargoliners stands ready around the clock to fill your fast transport needs to more cities in the U. S., including Hawaii, than any other airline.

And on United each job receives the priceless extra of Extra Care every inch of the way . . . from door to door. By taking advantage of United's Reserved Air Freight you can ship by any specific flight you choose.

When time means money to you . . . don't delay. Call United Air Freight.

WORLD'S LARGEST JET FLEET **UNITED** THE EXTRA CARE AIRLINE

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when you discuss pumps what does SG stand for?



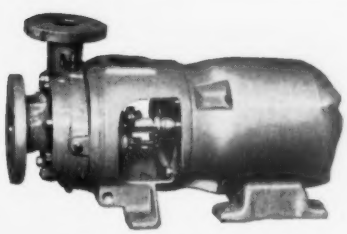
THE TECHNICAL DEFINITION

In the field of hydraulics, SG stands for SPECIFIC GRAVITY and is the ratio of the specific weight or density of a liquid with reference to fresh water with a base of 1.0 gram per cubic centimeter.

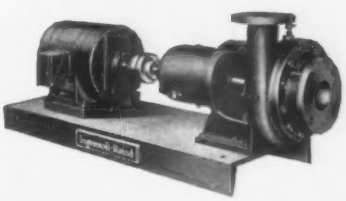
BUT THERE'S ANOTHER MEANING TOO

From a product standpoint Ingersoll-Rand also likes to think of SG as "SUPERIORITY GUARANTEED"...the extra value in design, workmanship and efficiency offered when an Ingersoll-Rand centrifugal pump is selected for your application.

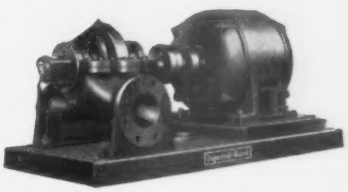
If you are having a pumping problem why not look into the added values of Ingersoll-Rand centrifugal pumps. Naturally our personnel are well aware of the effect of specific gravity on pump performance. There are pump specialists in every I-R branch office. Call them or see an authorized distributor of our complete commercial line of pumps.



Close-coupled Motorpumps ¼ through 75 hp—1, 2 and 4-stage models. Capacities to 3200 gpm — heads to 650 feet. Also available in self-priming models.



Cradle-mounted pumps ⅓ through 100 hp — 1 and 2-stage models. Capacities to 3200 gpm—heads to 525 ft. Also available in self-priming models.



Horizontally-split pumps 1½ through 400 hp—1 and 2-stage models. Capacities to 4000 gpm—heads to 1100 ft.

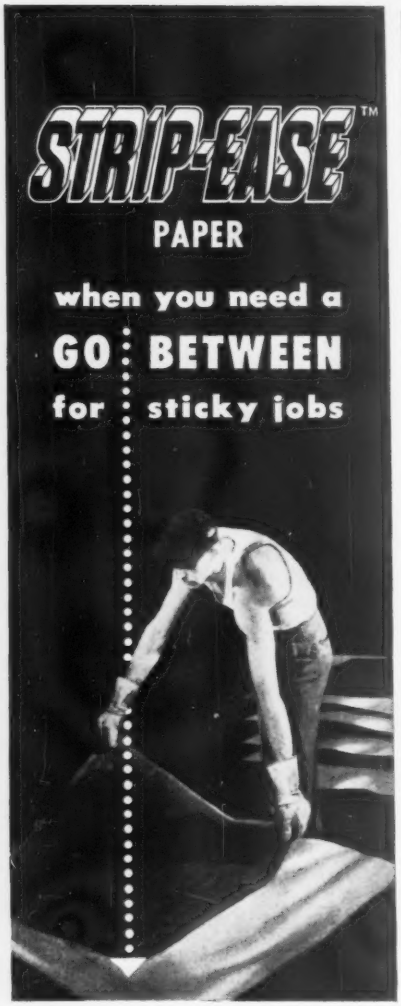
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OTHER PUMPS TO 200,000 GPM—PRESSURES TO 6500 PSIG.

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A new Riegel paper that *won't stick* offers remarkable savings in handling sticky things like uncured rubber, pitches, waxes, asphalts and adhesive masses. It's Riegel Strip-Ease, (tm) a slick separating and interleaving paper, coated with Dow Corning's Syl-off®.

Strip-Ease peels cleanly in a jiffy, ends wasted materials. Ideal for calendering and curing rubber and for wind-up of proofed rubber or plastics. Makes an excellent wrapper or carton liner. Surfaces won't pick or migrate. Can be re-used repeatedly in many jobs.

Riegel makes many other papers with quick-release and separating properties to serve industry in *products*, in *production*, in *packaging*. Can a Riegel technical paper solve some sticky problem for you?

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Riegel Paper Corporation
P.O. Box 250, New York 16, N. Y.

Please send samples and data on STRIP-EASE to:

Mr._____

Co._____

Address_____

Write No. 191 on Information Card—Last Page

FOB-"filosofy of buying"

LATEST GEM from our favorite overseas journal, *The Economist*, (Sept. 2 issue): "Coping with Englishmen is almost as complicated as being one."

• •

YOUR SHOP people may be driving you batty by requisitioning, then hoarding, more items than they'll need in a lifetime. But you may get some consolation by reflecting that it was ever thus.

Archaeologists digging around Roman ruins in Inchtuthil, Scotland, have unearthed seven tons of nails from six to sixteen inches long piled up in a fortress built in 83 A.D. When the Romans decided to move to another spot they didn't want to leave the nails behind for fear some of the surlier Scots in the neighborhood would use them for weapons. But they just didn't have the transportation to haul the nails, so they buried them on the spot.

All of which goes to support one of our pet theories: unless purchasing is given responsibility for inventory control, standardization, and value analysis, our economy may go the way of the Roman Empire. Come to think of it, that nail surplus problem was caused by a poor make-or-buy decision—something that wouldn't have happened if a good P.A. had been consulted.

• •

INDUSTRIAL distributors at a recent conference sponsored by the American Supply and Machinery Manufacturers Association were surprised and pleased to hear Hugh Lloyd, director of purchases for Jack & Heintz, open his address with this tribute to industrial distributors:

"One of the many reasons that Jack & Heintz is in business today can be traced back to the late 1940's. It was during this period that several of your fellow indus-



"Okay, John, you had your little joke. Now let's see your real price list."

The "H.B.P." in the cartoon above is Hoyt B. Pritchett, purchasing director for Brown & Williamson Tobacco Corp., Louisville, who numbers among his frank friends a salesman who's as handy with the artist's brush as he is with the fountain pen.

trial distributors saw fit to offer credit to us over an extended period. This helped our company survive two or three trying years. Consequently, we at Jack & Heintz have a soft spot not only for the companies involved but for industrial distributors in general.

"This, incidentally," Hugh continued, "is one of the little known and seldom publicized services rendered by industrial distributors and one that is often overlooked when an attempt is made to evaluate their worth to industry."

Hugh was as honest as he was diplomatic. "We certainly can't buy on sentiment," he added, "but we can buy quality, delivery and price, and when you find all three in a good distributor, you can't help but make the right decision."

• •

THE NORTH JERSEY Association keeps its members thinking about purchasing even during the pre-meeting dinner. At each member's place is a small slip of paper with a short "Thought for the Night" printed on it. Latest thought: "When considering prices, it is well to remember that there is no article manufactured that cannot be made worse and sold cheaper."

• •

CHARLEY JOHNSON, indefatigable public relations plenipotentiary extraordinary, passes along the news that R. S. Burnett, purchasing agent of W. E. Caldwell Co., Louisville, Ky., and vice chairman of the N.A.P.A. National Public Relations Committee, will be the banquet speaker at the Instalment Lending Division of the Illinois Bankers Association at Peoria, Ill., along with the comment "It looks like Bob has really gotten in with the money people." We racked our brains for a few minutes trying to remember a line from Omar Khayyam that would be a snappy comeback to Charlie —something about taking cash and letting the credit go—but age is taking its toll and the old memory machine failed.



If you have a tough corrosion problem and need wire cloth or wire cloth parts, here's a source of supply that knows the answers. We are proud of the quality of our cloth...accurate mesh count, close tolerance wire diameter, precision weaving...plus the know-how necessary to specify the proper alloy for your service conditions.

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Write or call us today if you have a problem calling for anti-corrosive wire cloth or wire cloth parts. Send for Bulletin F-C.

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Representatives in all principal industrial areas

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What makes D9s so



strong? And last so long?



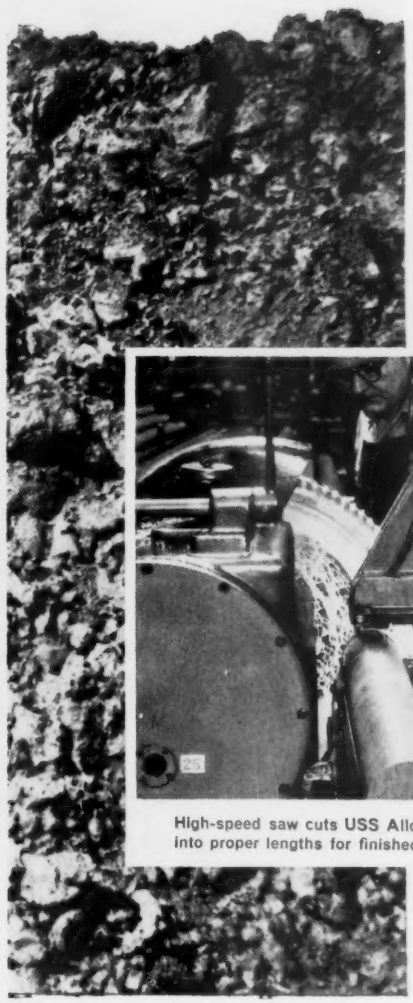
All Cat-built tractors *must* be able to take it—they lead a hard life. Especially the big, new D9G whose ferocious snarl is the result of a whopping 385 flywheel horsepower. That's an increase of 100 hp since the first D9 was introduced 5 years ago. It means that from stack to track, steel components have to be far stronger, more rugged. Solution: Caterpillar uses USS Alloy Bars for critical power train parts such as the final drive pinion. Says Caterpillar, "USS Alloy Bars meet our rigid specifications for strength, hardenability, durability, and precise tolerances."

USS Alloy Bars are not only exceptionally strong and durable, but they have excellent fabricating characteristics as well. Distortion during heat treatment and machining is an absolute minimum. USS Alloy Bars retain dimensional accuracy during quenching. And USS Alloy Bars are available in the widest range of sizes, shapes and grades in the industry. Order what you need from your nearest U. S. Steel sales office or Steel Service Center. USS is a registered trademark of United States Steel.

United States Steel Corporation • Columbia-Geneva Steel Division • Tennessee Coal and Iron Division • United States Steel Supply Division • United States Steel Export Company

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

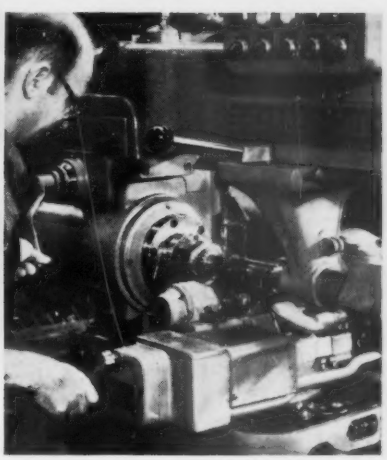
USS United States Steel



High-speed saw cuts USS Alloy Bars into proper lengths for finished parts.

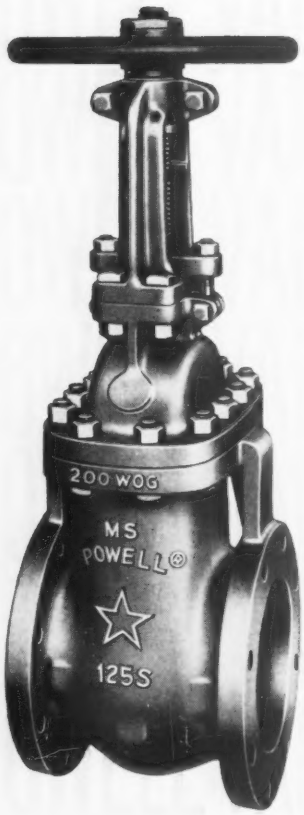


Transmission shafts are rough ground to general tolerances before finish grinding.

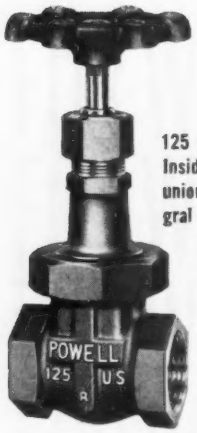


Hob operation cuts teeth into shaft—precise tolerances are extremely important here.

This mark tells you a product is made of modern, dependable Steel.

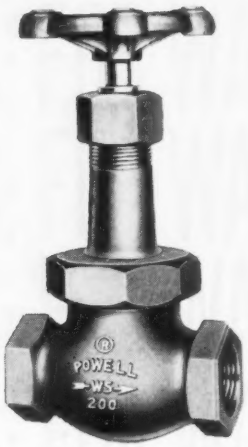


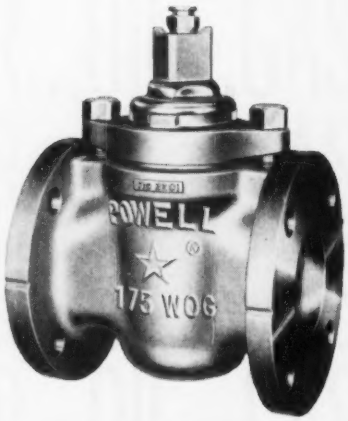
125 psi Iron Body Bronze Trimmed Gate Valve—Fig. 1793. Bolted, flanged yoke-bonnet, outside screw rising stem, fully guided solid wedge, bronze seat rings. Sizes, 2" through 30". Also available in All Iron.



125 psi Bronze Gate Valve—Fig. 2707. Inside screw non-rising bronze stem, union bonnet, solid bronze wedge, integral seats. Sizes, ¼" through 3".

200-pound psi. Bronze Full Flow "WS" Globe Valve—Fig. 2608. Extra large seat opening and high lift of the disc make possible practically full flow through when wide open . Sizes, ⅛" through 3".





175-pound W. O. G. Semi-Steel Lubricated Plug Valve—Fig. 2201. Single gland type. Wrench operated. Sizes, 1" through 4". Can also be supplied with screwed ends. Other types in semi-steel and steel available.

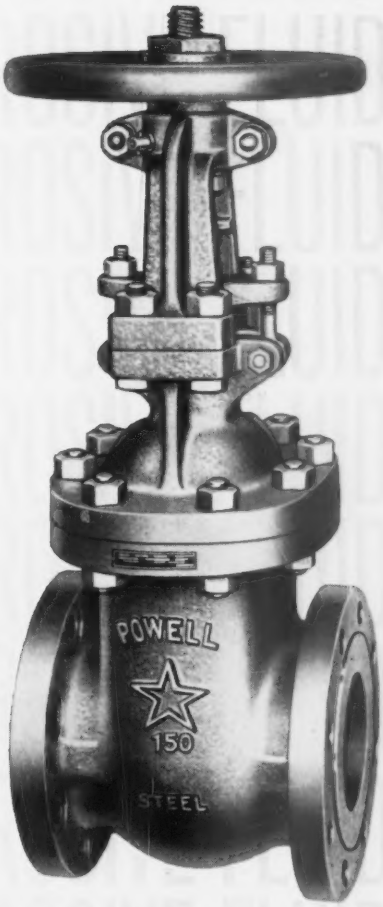
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You can depend on Powell Valves to meet virtually any flow control requirement. Valve designs are available in the widest selection of metals—for pressures from 75 to more than 2500 pounds psi—and temperatures from —400F up to 1000F.

When you buy Powell, you buy dependable performance—the result of engineering skill and experience. For further information, call your Powell Valve Distributor or write us direct.



125 psi Iron Body Bronze Trimmed Swing Check Valve—Fig. 559. Bolted Cap, regrindable, renewable bronze disc and seat. Sizes 2" through 18". All Iron valves also available.



150-pound W. P. Steel Gate Valve—Fig. 1503. Bolted flanged yoke-bonnet, outside screw rising stem, solid guided wedge, screwed-in seat rings. Screwed and welding end valves also available. Sizes ¾" through 30".

150-pound W. P. Stainless Steel Gate Valve—Fig. 2491. Bolted flanged yoke-bonnet, outside screw rising stem, interchangeable, fully guided solid or double wedge, integral seats, sizes, ¼" through 2".



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Be sure and visit our Booth No. 133 at the 28th Exposition of Chemical Industries, New York Coliseum, Nov. 27-Dec. 1.

Refer to our catalogs in Sweet's and Chemical Engineering Catalog.

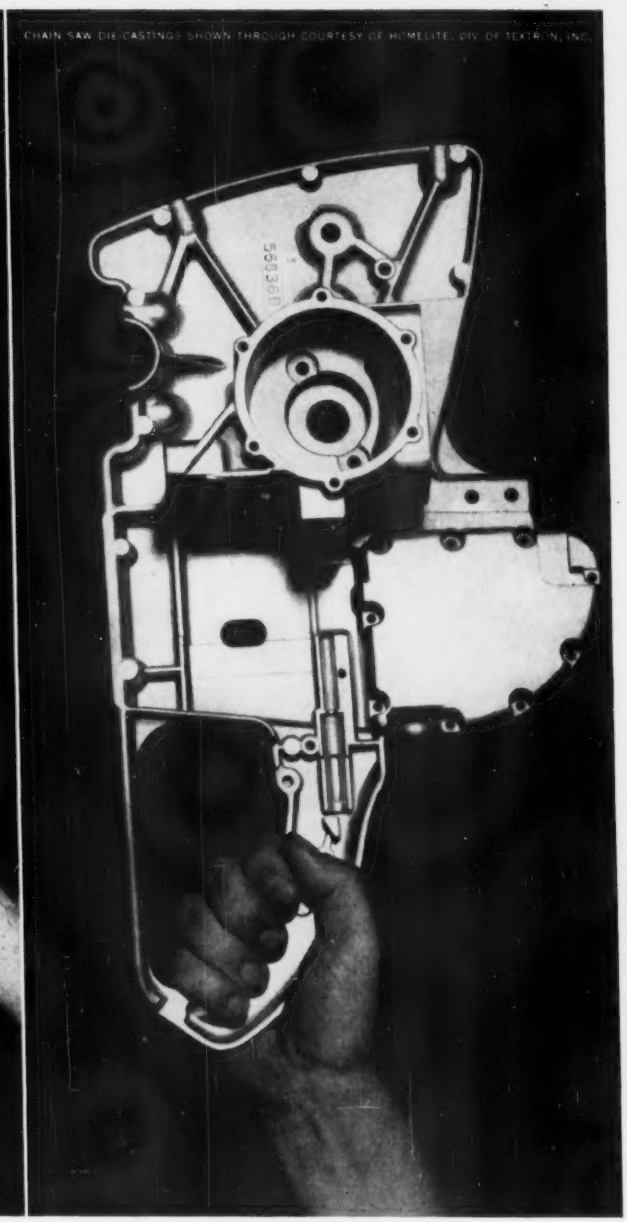
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THE WM. POWELL COMPANY, CINCINNATI 14, OHIO

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Multi-part assembly... or "assembly in the die?"

WHICH PROVIDES THE COST-CUTTING EDGE FOR YOUR PRODUCT?

If your product involves the assembly of two or more related metal parts, the chances are you can make important savings and a better product by having assembly "done in the die." Skilled one-piece die casting by Doehler-Jarvis cuts tooling and metal costs to the bone . . . saves you time and money at every assembling and joining stage. You save on rejects, too — in one-piece die casting, there are no such things as mismated parts. We call it UNITATION . . . the unique Doehler-Jarvis combination of unitizing and automation that produces the part you want in a single, strong casting. To learn how you can benefit from UNITATION, why not let an experienced D-J engineer take a hard analytical look at your cast, formed or assembled metal parts. His suggestions may save you thousands of dollars. Write or call.

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Calendar of Coming Events



Nov. 6-8. American Management Association: Seminars "Purchasing Management" and "Purchasing Research", Ambassador Hotel, Los Angeles, Calif.

Nov. 7-10. Packaging Machinery Manufacturers Institute Show of 1961, Cobo Hall, Detroit, Mich.

Nov. 8-10. American Management Association: Seminar "Value Analysis", A.M.A. Academy, Saranac Lake, N.Y.

Nov. 13-15. American Petroleum Institute: 41st Annual Meeting, Conrad Hilton Hotel, Chicago, Ill.

Nov. 13-15. Steel Founders' Society of America: Technical and Operating Conference, Hotel Pick-Carter, Cleveland, Ohio.

Nov. 14-16. American Society for Testing Materials; International Symposium on Electrical Contacts, Pennsylvania State University, University Park, Pa.

Nov. 16-17. National Foundry Association: Annual Meeting, Savoy-Hilton Hotel, New York, N. Y.

Nov. 20-24. American Management Association: Seminar "Negotiations", A.M.A. Academy, Saranac Lake, N.Y.

Nov. 26-Dec. 1. American Society of Mechanical Engineers: Winter Annual Meeting, Statler-Hilton Hotel, New York.

Nov. 27-Dec. 1. Exposition of Chemical Industries: New York Coliseum, New York.

Dec. 2-5. Society of Reproduction Engineers; American Institute for Design & Drafting; American Records Management Assoc.: International Visual Communications Congress, Biltmore Hotel, Los Angeles, Calif.

Dec. 7-8. The Society of The Plastics Industry, Inc.: Ninth Plastic Film Sheeting & Coated Fabrics Conference, Pierre Hotel, New York, N.Y.

Dec. 12-14. American Society of Agricultural Engineers: Agricultural Engineering Exposition, Palmer House, Chicago, Ill.

Jan. 8-12. Society of Automotive Engineers: Automotive Engineering Congress and Exposition, Cobo Hall, Detroit, Mich.

Jan. 22-25. National Plant & Engineering Show, Convention Hall, Philadelphia, Pa.

Jan. 29-Feb. 2. American Institute of Electrical Engineers: Winter General Meeting and 1962 Electrical Engineering Exposition, New York Coliseum, New York.

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CRUEL TURNS, RAW SPEED—VICTORY RIDES ON ROLLER BEARINGS!

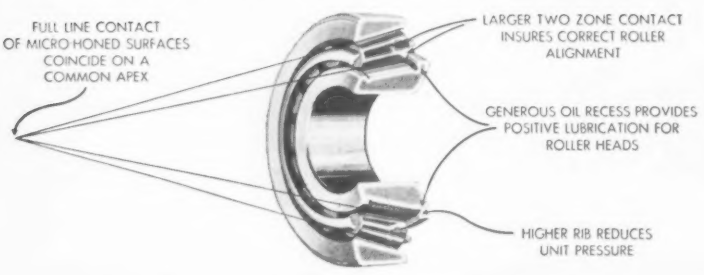
This pit stop is for tires, gasoline, *but no repairs!* Winning the race against time and keen competition demands peak performance from every mechanical component . . . no matter how violent the torture. Roller bearings, for instance, must perform so well they can be taken for granted. This is a familiar challenge for Bower engineers. Their many original contributions to roller bearing design have helped improve performance, minimize maintenance and reduce bearing failure to a rarity. That's why Bower Roller Bearings are widely used by the automotive and practically every other type of industry. If your product uses bearings, select from Bower's complete line of cylindrical, tapered and journal roller bearings. For technical assistance, write Bower Roller Bearing Division, Detroit 14, Michigan.

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KEEPING REQUISITIONERS INFORMED—Usual approach when a salesman calls with a new product is to send him out in the plant to talk to the user. This is awkward when there may be a number of different users or when the P.A. is not absolutely sure who might be interested in the product. Even in a small plant, a dozen different foremen might be authorized to issue requisitions for various MRO items. One solution: a routing slip the P.A. attaches to the salesman's "leave behind" literature. Interested foremen indicate their interest in the product on the routing slip before they pass it on.

CUT PAPERWORK AT THE SOURCE—P.A. for a Georgia plant carries on a bit of psychological warfare against needless requisitioning in the using departments. Every purchase requisition form carries this question boldly printed across the top: "Is This Purchase Necessary?" Although he can't prove it with specific figures, he feels the slight needle has led operating people to make sure the item isn't available around the shop before they ask purchasing to order it.

DON'T GET BURIED IN PAPER—Filing and storing records eats up valuable time and space often without economic benefit to anyone. Do you really need those accumulations of paper around the office? Overcome the natural reluctance to throw things away and take a good look at every record you're storing. Find out precisely what records you must keep and for how long. (A survey of companies in the Cleveland area showed some kept purchase orders for only two years, others kept them up to 15 years.) Question everything else you don't legally have to keep—is the information important, is it available in other files, etc.?

UNDERSTANDING BUSINESS FORECASTS—Business forecasts play a part in your business life whether you understand them or not. If you want to learn more about how economists forecast and why their forecasts often prove accurate you can get a good idea from Bulletin 21, issued by the Amos Tuck School of Business Administration, Dartmouth College, Hanover, N.H. The 18-page illustrated booklet is entitled "Economic Indicators—Their Use in Business Forecasting."

HELP ON INVENTORY CONTROL—A new book containing a collection of some new, some old suggestions for improvements in inventory control has just been published by VanDeMark, Inc., P.O. Box 120, St. Clair, Mich. The book, which is priced at $4.75, was written by R.L. VanDeMark, well-known authority on inventory control, and developer of the Order Point Calculator.

LET MUELLER MAKE IT!

Mueller Brass Co. of Port Huron is much more diversified than the name "Brass" implies . . . a lot more. In fact, because of its many and varied facilities . . . its *men, methods* and *metals* . . . Mueller is in the unique position of being able to offer true single source service.

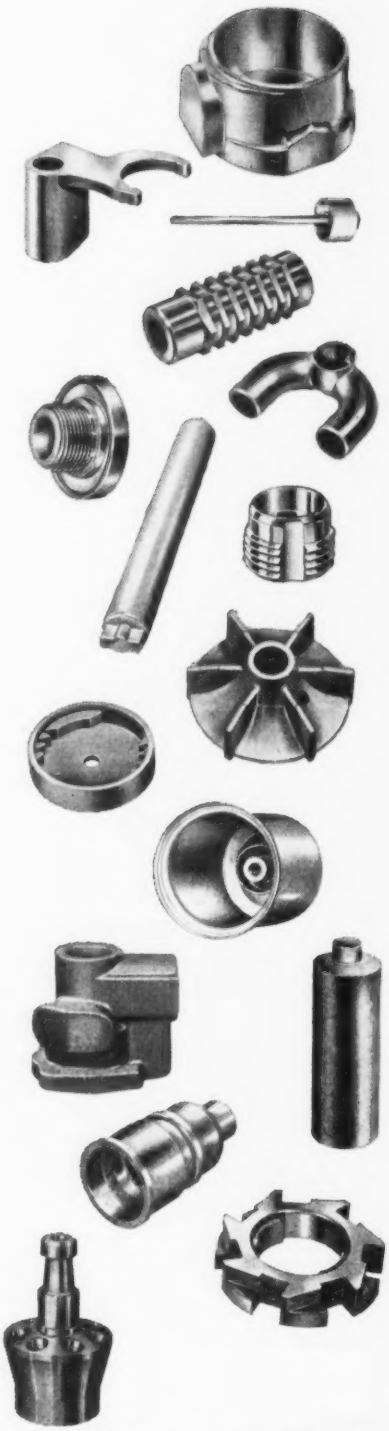
MUELLER HAS THE MEN . . . experienced engineers with the ability to work out, creatively, tough design problems, and improve a part or components for production by the most economical method. You get sound engineering plus 44 years of practical metalworking production experience when you "Let Mueller Make It".

MUELLER HAS THE METHODS . . . when you "Let Mueller Make It", you are utilizing one single source that is able to produce parts any one of these ways: as forgings, impact extrusions, sintered metal parts, screw machine products, formed tube or as castings.

MUELLER HAS THE METALS . . . and the materials . . . to produce precision parts in aluminum, brass, bronze, copper, iron and steel in hundreds of different alloys to meet each exact requirement.

In addition, Mueller Brass Co. has complete and modern facilities for performing all types of finishing and sub-assembly operations. Another plus value is nation-wide sales engineering service.

So, in the final analysis, no matter where you fit in the American industrial picture, whether you're making missiles or mowers . . . and no matter where you're located, it will pay you to LET MUELLER MAKE IT!



MUELLER BRASS CO. PORT HURON 30, MICHIGAN

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Editorial

What Makes Purchasing Ethical?

FEW P. A.'s will be surprised to learn that, in the eyes of the general community, their jobs have less prestige than those of clergymen, teachers, and surgeons. They also probably rank well below other professionals such as lawyers, engineers, and accountants.

No purchasing man who is honest with himself will pretend he doesn't know the real reason for this: in the public mind, the P.A. is often associated with corruption in business. The irony is that few of the widely publicized scandals actually touch the purchasing department. For example, it was Chrysler's president—not its purchasing agent—who got involved in a conflict of interest with a supplier. In the price fixing case, public utility purchasing agents were presumably victims, not participants.

Certainly not every purchasing agent is a prime example of moral rectitude. But the odds are that he's less likely to drift off the straight-and-narrow than most other company employees. The reason for this is simple: no good manager will hire a P.A. if he has any doubts about his character. This isn't true of other occupations. For example, every company suffers from petty pilferage by its employees of small tools, office supplies, and other materials. But if the P.A. is a crook, the losses can be enormous—and fantastically difficult to expose.

A manager who hires an honest P.A. can't always expect the P.A. to remain completely ethical—if the manager isn't ethical himself. The purchasing agent, like everyone else, is influenced by the people with whom he works.

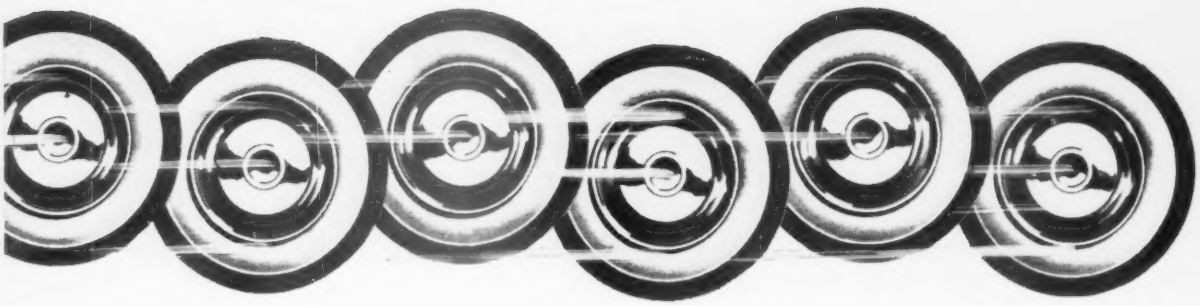
Purchasing's code of ethics can be a living code only if it's consistent with companywide ethical behavior. Companies that have adopted a definite ethical code are taking a step in the right direction. Without it, purchasing fights the battle alone. (See Ethics: More Than a Purchasing Problem, page 71.)

Paul V. Farrell

Purchasing Agents across the country confirm the

OK in OaKite

when they look for availability of cleaning compounds



When availability of a cleaning compound is important to your production or maintenance needs—it is good to know that Oakite carries stocks in 57 warehouses throughout the country. From the warehouse nearest you, your local Oakite man can take care of your requirements quickly and efficiently.

Too, count on the Oakite man for personal service. But count also on his specialized knowledge. Ask him how you can economize with more efficient cleaning methods, more effective materials. And ask him about the results of latest cleaning research . . . facts on time and cost-saving mechanized equipment . . . the benefits of materials *designed* to do the job.

Oakite Products, Inc., 54 Rector Street, New York 6, N. Y.

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- Hot Tank Cleaners
- Paint Strippers
- Prepaint Phosphate Treatment
- Steam-Detergent Cleaning Guns
- Barrel Finishing Compounds
- Chemical Sterilization
- Conversion Coatings
- Electrocleaners
- In-Place Cleaning Heat Exchangers
- Plant Maintenance Cleaning
- Spray Booth Maintenance
- other Mechanized Cleaning Methods

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ETHICS:

MORE THAN A PURCHASING PROBLEM

By Dean Ammer, Executive Editor

• ABOUT TEN years ago, a purchasing agent for a fairly large metalworking company invested $5000 of his savings in a small trucking firm. Last year he was able to retire at the age of 55. Apparently, he is able to live comfortably on the income from his investment. All this is in the classic American tradition—an entrepreneur risks his savings on a new enterprise and later gets his reward. But in this case, the risk was substantially reduced. For ten years, the P.A. "recommended" use of the trucking line he had an interest in to his companies' suppliers. Needless to say, the new venture was successful almost immediately.

• Shortly before Christmas, last year, the president of the XYZ Manufacturing Co. flew to Cleveland from Los Angeles to visit one of his best customers. Shortly after he checked into his hotel, he went to a specialty store and purchased 10 wallets for about $5 each. He spent the next day visiting his customer. Besides paying his respects to the customer's president and director of purchases, the supplier stopped around to wish a Merry Christmas to everyone who had anything whatever to do with his company—buyers, expediters, inspectors, the manufacturing superintendent, and various design engineers. Each got a wallet. Inside each wallet was a $50 bill. The director of purchases and the company president presumably got more elaborate gifts.

• A few months ago, the director of purchases of a New Jersey firm sent one of his buyers to Chicago for a week. A supplier was having difficulty meeting production schedules and the buyer was ordered to stay at the supplier's plant until the problem was worked out. While the buyer wasn't important enough to rate red carpet treatment, he naturally didn't have to buy any lunches. And the supplier's sales manager felt obliged to spend one night on the town with the buyer.

(Turn Page)

Naturally, the sales manager picked up all the checks and he also pre-paid the buyer's hotel bill. As a result, the buyer managed to spend less than $10 during his week in Chicago. When he got home, however, he dutifully turned in an expense account for $120. As a matter of policy, the buyer's company wanted its personnel to pay their own bills when traveling on company business and not to free load on suppliers. The sophisticated P.A. who approved the expense account wasn't necessarily convinced the buyer had actually paid the hotel bill. But the fact is he really didn't care as long as all the receipts demanded by the auditors were attached to the form (as they were.) The buyer was underpaid. And the P.A. knew that the top managers of the company were not always straight-laced when they made out their own expense reports.

While all these shenanigans were going on, thousands of other purchasing agents and buyers were quietly living on their salaries—without any unethical "fringe benefits" attached. Although there are many dishonest purchasing agents—just as there are dishonest lawyers, doctors, accountants, and salesmen — the average P.A. is above reproach. In fact, P.A.'s might not be indulging in idle boasting if they were to claim a moral edge on many of their fellow Americans. The reason for this is the fiduciary nature of their job. If the typical manager has the least doubt about a man's character, the last place in the world he'd want to put the man would be the purchasing department.

P.A.'s Must Be Honest

Ideally, management would like every employee to be completely honest. But if it has any doubt about a man, the purchasing department is one of the last places he'd be put in. A dishonest employee in manufacturing may be able to steal a few dollars worth of tools occasionally but plant protection will prevent him from walking off with too much. A dishonest engineer can do little more. A dishonest accountant must also be a near-genius if he hopes to foil internal auditors and C.P.A.'s. But there's not much to stop an unethical P.A. His records may be audited but this is no problem: just don't do anything that ever shows up on a record!

Because of the nature of his job, the purchasing agent is intimately involved in the most common unethical business practices. This was borne out by a recent survey made by the *Harvard Business Review* (published in its July-August, 1961 issue). Respondents were asked what was the business practice that they would "most like to see eliminated." Practices cited by respondents included gifts, call girls, price discrimination, dishonest advertising, unfair competitive practices, cheating customers, price collusion, dishonesty in making a contract, and others.

Become Unwilling Cohorts

Interestingly, 89% of the respondents cited practices that had something to do with purchasing. Sometimes the buyer or customer was a beneficiary (gratuities and gifts, etc.) Other times, he was the victim (price discrimination, dishonest advertising, etc.)

Thus the P.A. is really the man in the middle when it comes to ethics. Even when he is an innocent bystander, some of the dirt almost always rubs off on him.

In many cases, P.A.'s are unwilling participants in off-color deals. For example, almost every purchasing agent knows of some company where not *every* purchase is made on the basis of price, quality, and delivery. Some top executive tells the purchasing agent where to buy certain items. In one company, the president's son may have an interest in an auto agency so guess where the P.A. buys the company's cars and trucks.

Friendship Is the Bond

In another company (Chrysler has become the classic example), top executives may have a direct interest in a supplier. Much more common, the bond between management and supplier isn't economic—it's friendship or kinship. While there's nothing necessarily unethical about buying from management's friends, some P.A.'s wonder if they're really being completely fair to other suppliers (or to their companies' stockholders who probably don't get the competitive buying they deserve and have every right to expect.)

P.A. Must Be Strongminded

If management is lining its own pockets at stockholders' or suppliers' expense, it takes a P.A. with very strong character indeed who is not corrupted in the process. Apparently, there are many such P.A.'s. In most of the widely publicized scandals in buyer-seller relations, purchasing has been an innocent bystander. Chrysler's president, not its purchasing agent, became part-owner of a company supplier. Purchasing agents were victims, not beneficiaries, of price fixing by electrical equipment companies.

When top management sets the proper ethical tone, it's a rare P.A. or buyer who will step off the straight and narrow—even when there's little or no chance he will be caught. The *Harvard Business Review* survey indicated that unethical practices appear only when the business environment favors them. The three most important factors influencing unethical practices are the behavior of a man's superiors, the ethical climate of the industry, and the behavior of a man's equals.

Everyone imitates his boss to some extent. If the boss is completely ethical and honest in all of his dealings, his subordinates will think twice before they engage in any unethical practice. What is ethical in one industry may not be ethical in another. Standards are probably strictest in the federal government. Few buyers for the Air Force, for example, would dare openly admit accepting even a free lunch from a supplier.

However, industry isn't this straight-laced. Purchasing agents are not ashamed to admit that they let a supplier take them to lunch, (the smart ones recipro-

(Text continues on p. 74)

What's the Score on Ethics?

Purchasing agents have always been in an exposed position on ethics. Regardless of what other groups do, purchasing always gets the *brunt of the public's censure or ridicule for free-loading at best,* grafting at worst. Recent disclosures have proved that unethical conduct isn't limited to any particular group and, to some extent at least, the purchasing agent's role has been put in proper perspective. In this Purchasing Magazine Opinion Poll, a representative group of purchasing executives comment on business ethics and their relation to purchasing.

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1. Has your company recently done anything to make sure its employees' business conduct meets legal and ethical standards?

Reaffirmed previous published policies	52%
Taken special action	11%
No action	37%

(Special action includes new policies regulating gifts and entertainment, conflict of interest investigations, and other controls designed to ensure high ethical standards.)

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2. Has any action been taken with respect to the purchasing department in particular, beyond what applies to the rest of *the company?*

Yes	7%
No	93%

(Typically, such special action consisted of detailed policies spelling out standards of conduct for purchasing personnel.)

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3. Have you noticed any real change in suppliers' attitudes or practices on gifts and entertainment in the past year or two?

Yes	48%
No	52%

(Most respondents answering "yes" indicated that suppliers were spending less on gifts and entertainment.)

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4. Do you think that in the long run public disclosure of business scandals (e.g. the Chrysler affair) is beneficial or harmful?

Beneficial	73%
Harmful	26%
Neither	1%

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5. Do you think company or professional codes of conduct or statements of principle have any real effect on businessmen faced with an ethical problem?

Yes	74%
No	23%
Don't know	3%



Illustration courtesy
North American Aviation, Inc.

A Question of Ethics

The most common method used to uncover conflicts of interest are questionnaires, says the NICB. More than 25% of those surveyed have developed questionnaires which ask employees to declare any personal circumstances that might conflict with company interests. However, some executives point out that men who are unethical in their business practices are likely to be just as unethical in answering a questionnaire. Most important provisions in these policy statements are:

(1) *Conflict of interest resulting from investment in supplier, customer, and competing companies;*
(2) *Borrowing from or lending to supplier or customer companies;*
(3) *Acceptance of substantial gifts or excessive entertainment;*
(4) *Trading in company stock for quick profits;*
(5) *Misuse of privileged information;*
(6) *Outside employment that affects working efficiency;*
(7) *Holding outside directorships;*
(8) *Financial speculation;*
(9) *Acquisition of real estate of interest to the company; and*
(10) *Participation in civic or professional organizations that might involve divulging company data.*

The principal ethical question of concern to boards of directors is conflict of interest, according to a recent survey by the National Industrial Conference Board. Approximately 33% of the manufacturing companies surveyed by the board have written policy statements governing ethics—compared with only 10% a year ago.

cate.) And most would willingly admit they accept other modest favors from suppliers. But only a very few accept anything of really significant value. Naturally none of these would be willing to admit it. Reportedly, in other fields—most notably retailing—more lavish gifts and entertainment are accepted as being reasonably ethical.

Buyers Follow Example

And, of course, everyone is influenced by one's peers. The young salesman, fresh out of college, may be told by his boss to list exactly what he spends when he makes out his expense account. If he's alert, however, he'll talk to some of the experienced salesmen before he turns in his first actual expense report.

The cub who'd just as soon grab a hamburger at the White Tower for lunch will be told to put down $2.40 for lunch instead of 40¢. "If you put down just 40¢" he'll be told, "it won't be long before the auditors at the home office will be asking us why we have to spend almost $3.00 when you can get along just as well on much less. You really don't want to ruin things for us."

Naturally the young salesman goes along with his co-workers. Whether it's ethical or not, most salesmen's expense accounts probably reflect the "accepted amount" which may be roughly equal to what most salesmen would spend on a similar occasion but probably isn't what that particular salesman spent on that particular occasion.

Of course, buyers are not unlike salesmen with respect to expense accounts; they're influenced by each other. And they influence each other with respect to other ethical practices. If a new buyer sees one of the others favoring a pet supplier, he may be tempted to do the same himself. On the other hand, if other buyers seem scrupulously fair, he will probably imitate them.

47% Notice Change

Thus, the purchasing man can't help but be influenced by his environment. First, by his boss and co-workers, then by the company, and finally by his industry. Most companies recognize that purchasing is part of a bigger environment. Their policies on ethics apply uniformly to all departments including purchasing. A few companies—7% of the respondents to PURCHASING Magazine's survey on business ethics (see p. 73) give purchasing special treatment. They note most

ethical problems come in relations between buyers and sellers and that purchasing should get special attention as a result.

Significantly, 47% of the respondents to the Purchasing Opinion Poll note a "real change in the attitude or practice of suppliers in regard to gratuities in the past year or two." Almost every P.A. commented that the change was in the right direction: toward less gifts and entertainment. Some of the more cynical respondents thought that bad business was the main reason suppliers haven't been quite as free and easy as in former years.

Discourage Christmas Gifts

One New Jersey firm goes one step further. In November of each year it sends the usual letter to suppliers telling them that gifts aren't necessary and that buyers aren't permitted to accept them. "Naturally, a few cynical suppliers interpret our letter as a veiled invitation to send a gift," the director of purchases comments. "But they change their tune when we show them we really mean business. Not only do we make the buyers return all gifts but we will also refuse to do business with any supplier who consistently ignores our no-gift policy," he declares. "Fortunately, most suppliers catch on fast and we haven't had too many repeat offenders."

Suppliers Get the Message

Some noticed that the suppliers themselves seemed to be getting more ethical. For example, many suppliers now make a donation to some charity with the money they formerly spent on Christmas gifts for P.A.'s. Other suppliers just don't spend the money on anyone. "Suppliers have finally awakened to the fact," one respondent pointed out, "that they can get just as much business from me if they don't spend a nickel on gifts or entertainment. So a lot of them have cut it out completely and it suits me fine."

If enough P.A.'s take this attitude and really mean it, some of the moral stigma attached to purchasing may gradually wear off. But, unhappily, the P.A. will probably continue to be associated with unethical business practices even if he is completely innocent. Ethics break down only when someone can gain at someone else's expense. In business, ethics are almost always tested in relations between buyers and sellers. As long as purchasing buys, it's bound to be blamed for unethical practices even if it doesn't deserve it. ► END

(Abstract of an address presented at the 15th Annual Southwest Purchasing Conference in Dallas on October 5, 1961.)

A View of the Salesman...

Following are excerpts from Clarence Randall's recently published book, "The Folklore of Management," published by Dun & Bradstreet, in which the former chairman of the board of Inland Steel Co. takes a few pokes at extracuricular sales efforts.



Clarence B. Randall: P.A.'s have little respect for playboys.

The salesman who resorts to the nightclub approach is usually a man who likes nightclubs. It never occurs to him that the man on the other side of the transaction might just possibly prefer to stay home, have a quiet evening with his family and go to bed early. . .

. . . "In the earlier days of the automotive industry, the favorite technique was for a salesman to go to Detroit, organize an all night poker game, and lose heavily to the chief purchasing agent. This approach lost sight of the fact that there are strange characters who would rather read a book in front of a fire than play deuces wild and absorb bourbon until dawn. . .

". . . The only relationship between seller and buyer that will endure through the years is one which rests solidly on mutual satisfaction and understanding. No such lasting commercial partnership can be purchased with champagne. Nor can it be induced by a shallow effusion of insincere friendship from a show-off who has been given a fat expense account. Purchasers who bear substantial responsibility are intelligent and serious minded executives. . . They have little respect for playboys."

—Clarence B. Randall,
The Folklore of Management, pp. 113, 115.

What Purchasing Means To Europe

Twin goals of West European buying executives are to improve their own purchasing performance, and increase competition among suppliers. Their efforts are showing results as the battle for foreign and domestic markets gets rougher.

By Paul V. Farrell, Editor



Professional development courses are popular with European purchasing officers. Shown here are several members of the Compagnie des Chefs d'Approvisionement et Acheteurs de France at a recent Materials Management International seminar in Paris.

ON PAGE THREE of its little 4-page welcome folder, William R. Warner & Co. Ltd., Eastleigh, Hants, England, bluntly tells visiting salesmen:

"We want to deal with progressive and financially sound suppliers. BUT . . . We are most strongly opposed to all forms of price-rings and similar restrictive practices, whether official or unofficial."

The warning probably would never have been seen in the United States. Restrictive practices — price fixing, bid-rigging, monopoly, etc.—are illegal in this country (although they are regularly attempted). The warning might even have seemed unusual in England or elsewhere in Europe until a few years ago. For a century or more, trade agreements among suppliers had been accepted as a normal part of business. Even now certain industries are permitted by the British government to enter into restrictive agreements.

But restrictive practices, already disappearing in Western Europe, are finally coming under heavy pressure in Britain, and industrial purchasing officers are

During recent trips to Europe, PURCHASING Magazine Editor Paul Farrell met and talked with a large number of purchasing officers in the United Kingdom and on the Continent. He also conducted a number of seminars in Great Britain and Ireland for Materials Management International.



West German industry is perhaps the most aggressively competitive in the world—both as buyer and seller. Volkswagen, for example, which has successfully invaded the auto market in dozens of countries, buys equipment for this plant in Wolfsburg from many foreign sources.

helping—cautiously, but surely—to apply it. They have seen competition on the Continent increase as cartelism declined, and as good buyers they want to see the same thing happen in the United Kingdom.

Promote Competition

The campaign Warner's purchasing department is carrying on against restrictive practices is only one of the many things West European buying executives are doing to promote competition. In Scandinavia, France, West Germany, the Netherlands, and the U.K., there has been a sustained fever of purchasing activity for about the past ten years. And in those years, European purchasing has driven as hard to raise its standards of performance as American purchasing has in several decades.

Purchasing's drive is only beginning to pick up steam now as the battle for domestic and foreign markets gets tougher. What their European counterparts are doing and planning is of interest and great significance to U. S. purchasing executives, most of whom will be affected in some way by the course of the European economy.

The importance of purchasing to European industry has been somewhat obscured here by the stress on wage differentials of American and foreign workers. Wages have, of course, tipped the balance in favor of many European producers. But as wages continue to rise abroad, the spotlight is turning to another area long familiar to American P.A.'s: the cost of materials.

Reduce Materials Cost

Materials, according to a recent study of the National Industrial Conference Board, are the most decisive factor in the comparative cost of manufacturing in the U. S. and abroad. In both domestic and foreign operations they take a larger share of the total cost dollar than any other cost component. Generally, foreign producers have to pay substantially more for materials used in identical products than U. S. manufacturers do because of our more readily available natural resources and larger markets.

If European P. A.'s can bring down these costs—which range from 5% to 50% higher than in the United States—they will offset rising wage costs and make their companies more competitive than ever. And they are out to do just that—despite some rugged but slowly crumbling obstacles in their paths.

Tradition Stands in the Way

The biggest hurdle in the path of good purchasing in Europe is the traditional, custom-bound, protection-minded management. To many of them competition as we know it is a horrid word, nepotism is good management, and monopoly is a way of life.

The Economist, the brilliant conservative British publication, lashed out at this sort of management, recently in a discussion of the country's economic plight. But its denunciation of "the lack of a spirit of thrustful competitiveness in British industry" applies equally to many companies everywhere, including the U. S.

"Able executives," *The Economist* said, "have sometimes seen that the safest way to promotion within their firm is not to flutter too many dovecotes by wanting to change too many of the well-established ways of doing and selling things; later, when leading their firms, they have too often felt that the gentlemanly way to progress may be by not running too deliberately foul of other existing producers in their trade."

But *The Economist* had hopes. "In the last few years the Restrictive Trade Practices Act has been shown to have teeth; resale price maintenance (in U. S. called "free" trade) has begun to break down despite Britain's outdated legal props for it; there has been a new feeling around of ants in the pants in the boardrooms; tariff cuts and abolition of import restrictions have become respectable; and the country has even come to the brink of joining the common market." (Shortly thereafter, Prime Minister Macmillan announced that Britain would apply for member-

ship in the EEC—European Economic Community.)

Business leaders in France and Germany have been equally frank about themselves and even more optimistic about the results of freer trade and greater competition. "Residual stand-patters on France's long, traditional protectionism are either in rout or en route to conversion," according to a report by Comité France Actuelle, an industrial association.

West Germany's Industry Booms

President of the Federation of French Industries Georges Villiers declared that: "French manufacturers and businessmen are determined to see the plans for a European Economic Community carried through. French industry, rejecting the protectionist ideas which have prevailed since the turn of the century, wishes to increase the flow of trade with other countries."

Probably nowhere has custom been so flouted and competition so fostered as in West Germany. When German industry rose from the ashes of World War II it left many of its hidebound ideas about doing business behind it. Competition—and willingness to meet it—has become almost an obsession in Germany. German industry wants to sell to the rest of the world and is ready to buy from the rest of the world when price, quality and service are right.

Walking through the famous Volkswagen plant in Wolfsburg I saw dozens of pieces of American equipment—Clark trucks; Danly, Clearing, and McKay presses; Acme and Norton machine tools; Tennant Sweepers; Ransburg and De Vilbiss painting units; and many others. Volkswagen buys $700,000 worth of steel and magnesium per month in the United States.

Director of Purchases Hubert Massen summed up VW's purchasing policy this way: "We try to sell a quality, low-cost product in one of the most competitive of all fields. To do it sucessfully we must buy the best at lowest cost whenever we can and wherever we can. We're always looking for new suppliers with new ideas. They get our business on the basis of what they provide to make us more competitive in our own markets—and nothing else."

Price-Fixing Is Forbidden

As the old-line monopolistic, protectionist managements are pushed backwards by increasing competition, they're taking with them some related obstacles to good purchasing:

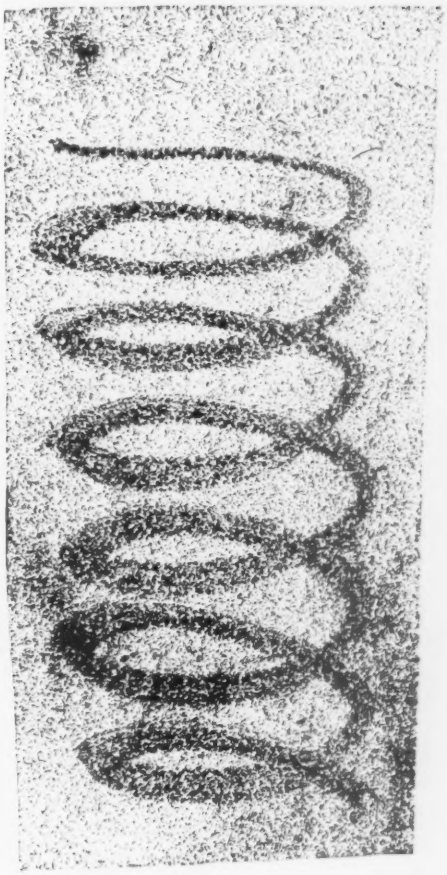
- The European Economic Community is strongly anti-cartel and restrictive agreements are prohibited, with certain reservations, in the EEC treaty. Agreements on prices "or any other trading conditions" are explicitly forbidden. British purchasing agents, still battling to create more competition in some basic industrial products (until only a couple of months ago, for example, nuts and bolts were legally sold at fixed prices) predict their country's membership in EEC will just about deal a death blow to the most offensive trade agreements.
- Innovators and individualists among manufacturers will have a better chance to introduce their ideas—and increase competition—when the power of trade associations to limit membership and control prices is broken. European purchasing has long suffered from a lack of specialty suppliers of the type known in the U. S. They will flourish in a genuinely competitive economy, giving purchasing greater choice and thereby greater opportunity to lower costs. The tendency of European industry to make (often at very high cost) what it could not easily buy will be reversed.
- Aggressively competitive managements will recognize the contribution good purchasing can make to profit and will give it the stature and the authority to do so. Most European industry is still strongly engineering-oriented but both the engineers and their managements are recognizing that value buying supports, rather than threatens good enginering. Volkswagen's Hubert Massen told me that the engineer is still the kingpin at VW. But, he added quickly, "we not only have the authority to encourage new ideas and suggestions from vendors, but are expected to do so."
- Highly trained and educated people are being recruited for purchasing. The British Purchasing Officers Association has developed an excellent course of purchasing training, perhaps the best to be found anywhere, and a growing number of firms now require their new buyers to take the P.O.A. diploma. Many firms are moving engineers and chemists into the purchasing department.

(*Please turn to page* 186)



"Have you noticed the big increase in foreign competition?"

Some Tips on Buying Springs



- How to keep costs down
- What you should know about specifications
- Ways to avoid specific spring buying problems

By L. D. Fykse,
Director of Marketing,
Associates Spring Corp.

THERE ARE few mechanisms or products with moving parts that operate without springs or spring-like components. Although these parts generally perform key functions, their unit cost is often low. A large variety of much-used compression and extension springs, for instance, are priced at less than a cent apiece.

The buyer's natural temptation, of course—even with a low-priced item—is to pare costs to the minimum. But even relatively minor cost differences can mean much in spring performance. If you pay too little for a spring you're likely to bring on an epidemic of inspection, production, and service troubles. If you pay too much you may be getting a better spring than you need.

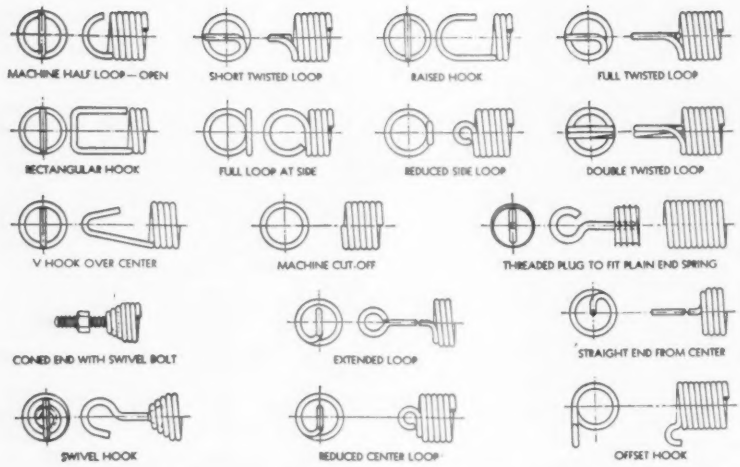
There are many pitfalls in spring buying. Possibly no other single machine component has so many variables which affect serviceability. All spring materials have high ultimate strength and should be uniform from lot to lot. To avoid failures, surface requirements have to be stringent; rigid inspection is a must.

Severe Testing Is Necessary

In most springs, the length of the material is much greater than its diameter or thickness. In manufacturing a spring the long strip is severely distorted, far beyond its elastic limit. The spring is then given one or more heat-treat operations, causing further distortion; the ends are often severely ground; the surface may be heavily peened; and often the spring is further tortured either by baking on a finish, or by immersing it in an electrolyte during a plating cycle. Only the best techniques can assure uniformly high quality needed in so many springs. The finished spring often must pass a close dimensional check, and then repeatedly withstand stressing until it is near its elastic limit, for millions of cycles.

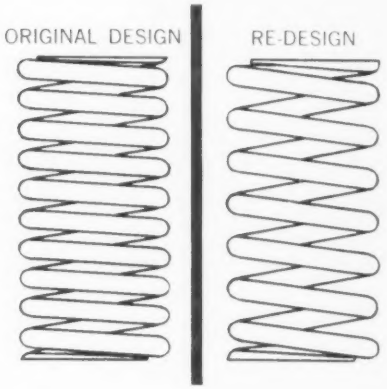
Although failure to design a spring properly for a given job can cost heavily, many springs still are born of "cut and try" methods. A machinist may make his own or may even rework some existing spring to do the job. The design of many springs has never even been checked, let alone engineered. Shortcomings are detected only when there is a field failure, or a cost and engineering review.

Over-design can also be a problem. Often such springs are very low-stressed, either by accident or intent. They may cost too much, weigh to much, and take



Few mechanical components involve so many variables as the supposedly simple spring. Here are just some of the many types of ends used on extension springs.

Although many springs cost very little, proper design can nevertheless lead to worthwhile savings. In its original design more than half the weight of this motor support spring was wasted. By changing from 10 coils of .120" wire to 7 coils of .105" the weight per thousand was reduced from 130 lbs to 60 lbs, without impairing performance.



up too much space.

Take the case of a helical compression spring which is used as a motor support spring. It had been made for several years with no problems in manufacture or usage, but because of mounting costs the user made a complete design check. The stresses were very low, it turned out, particularly for the grade of material. A good grade of wire was literally just going along for the ride. From an original design of 10 coils of .120" wire, a change was made to 7 coils of .105" wire.

Cut Cost by 40%

Although the thickness was changed only .015", because of the fourth power relationship of wire diameter to weight, this meant a change from 130 pounds of wire per thousand springs to only 60 pounds of wire. In addition, the shorter length of wire meant that the speed of operation of the automatic coiler was increased, the grinding speeds increased, the weight for handling, heat-treating, and finishing was reduced. As a result, the final design cost 40% less than previously.

Another example of cost cutting through proper spring design concerns the large spring used in the nose wheel of a plane. In this application weight, of course, is a major consideration. A change in design, material, and manufacturing procedure resulted in an increase in stress of 50%. This in turn resulted in a weight reduction of 17 lbs per spring. With an aircraft weight multiplication factor of approximately 10/1 this was an important change.

Fortunately, a great number of spring applications are not critical. But in vital areas, competent spring designers and manufacturers should be relied upon for their necessary detailed knowledge of springs as well as their knowledge of machines, mechanics, metallurgy, engines, suspensions, and all classes of products and systems using springs.

Improve Spring Performance

Through research and development, spring performance characteristics are constantly being improved. Low-gradient springs have been developed in which the load is virtually unaffected by the amount of deflection. These are particularly useful in movie cameras and similar spring motor applications. Belleville springs, which have the appearance of dished washers, are continually finding wider usage and now are available in pre-assembled stacks. Torsion bars feature simplicity and relatively low cost, but so far their application has been under-

Quick Tips for Better Spring Buying

The following suggestions may help the purchasing agent offset some of the more common troubles encountered in specifying and buying springs:

(1) Make performance checks on any and all samples submitted to the spring manufacturer before asking for a quote, or placing orders based on the samples. Distorted or "off-spec" samples simply invite trouble.

(2) Make certain that all blueprints submitted are legible and complete.

(3) Check the spring print for all references to applicable operating conditions and limitations. They can be important.

(4) Check the print for any reference to dimensional tolerances. Determine what your receiving inspection will work to. Lists of commercial spring tolerances are available from the larger spring manufacturers. Do not expect to apply machining tolerances. Commercial tolerances cost less than precision tolerances.

(5) Having specified certain conditions on the print, make certain that your inspection department is equipped to carry out the checks using approved devices. Also be sure that they are compatible with your suppliers' equipment.

(6) Be sure that your designers have not specified unsuitable finishes. They are often difficult to obtain and apply, and resulting costs are high. Many standard finishes are available for springs, each with its own characteristics. These cover the complete range from an identification finish to one with prolonged salt-spray corrosion resistance. For maximum corrosion resistance, maximum ductility, and lowest cost, cadmium or zinc plating should be specified.

(7) Hydrogen embrittlement in springs occurs from time to time, and is usually associated with plated springs. While eliminating this condition is largely the responsibility of the spring manufacturer and the plater, the customer can help. A spring with higher than normal spring hardness can be plated only at considerable risk. Extension springs frequently give trouble when plated, because of high, concentrated stresses which cannot be fully relieved before plating. Plating requires the greatest care by all concerned, but when handled properly, provides an excellent finish.

(8) If previous shipments have not met all requirements, pass all details on to your spring supplier. Inadequate design or overstressing causes most spring failures through loss of load or fracture in service. Often both can be remedied, by redesign, if the facts are known.

(9) Consider shot peening. No other single operation has such a beneficial effect on the life of springs and is relatively low in cost. It is most beneficial for surface improvement of open-wound helical springs, but through burr removal and general peening effect it can help many spring types.

When You Talk About Springs...

Lack of a universal glossary to describe springs often causes delays and errors. Here's a listing of the terms most often used in spring design and manufacture:

DIRECTION OF HELIX
Specify as inside, outside, or mean.

COIL DIAMETER
Right hand if it will thread onto a right-hand screw.

FREE HEIGHT
Height or length of spring with no load.

SOLID HEIGHT
Height or length of spring with all coils touching.

INITIAL TENSION
Load in pounds required to separate coils in an extension spring.

NUMBER OF COILS
Compression springs normally have active coils plus two inactive, making up the total number of coils. Extension springs have only active coils.

PITCH
The spacing of the coils measured from center line to center line.

RATE
Load required to deflect a spring by a definite amount, usually expressed as pounds per inch. It is a measure of the stiffness of the spring.

SET OUT
A deliberate overloading of a spring used to minimize or eliminate load loss of a spring in service, and to raise the safe load.

TENSILE STRENGTH
The maximum stress which a length of material will withstand in tension, without breaking. Usually expressed in pounds per square inch.

TORQUE
A measure of the load on torsion springs, the load times the distance from the axis, expressed in inch-pounds.

developed.

Of even more interest than new spring developments is the introduction of new spring materials. Springmakers now have available higher strength music wire—a great aid where space is limited. Also, higher strength stainless wires, which are excellent spring materials, are now available.

Many of the new materials find use in high-temperature applications. Such names as Refractalloy 26, Rene 41, NS-A286, NS-25, Inconel-X, and Waspaloy are comparatively new in the spring industry, each with its specific advantages and limitations, and users will hear more of these materials as the industry increases its knowledge of fabricating and using springs made from them.

The spring industry lives in the midst of changes and variety. The future will demand a greater dependence on technical skills and a greater degree of cooperation between the spring designer, purchaser, manufacturer, and user than ever before. ► END

Recent Decisions in Purchasing Law



By Albert Woodruff Gray,
Legal Editor

Buyer Is Liable For Seller's Goods

Tin plate waste sold in New York by the Tinplate Purchasing Corp. to Tuteur & Co., was shipped directly by the seller to the purchaser's customer in Italy. When the material arrived in Naples the consignee refused to accept delivery, contending that the material did not meet the specifications of the purchase agreement.

It was later agreed that the material should be returned but held by the Italian customer for the account of the Tinplate Purchasing Corp. in a Naples warehouse. While the goods were still in this warehouse, Tinplate Purchasing Corp. sued Tuteur for damages for what it claimed had been a breach of contract and for the failure to return the goods. In a judgment in favor of the Tinplate Purchasing Co., the New York court said: "It seems to me, that the agreement made by the parties with respect to the goods in the warehouse is one of simple bailment.

"Bailment is defined as a delivery of personal property for some particular purpose or a mere deposit upon a contract, expressed or implied, and that after such purpose has been fulfilled it shall be redelivered to the person who delivered it or otherwise dealt with it, according to his directions or kept until he reclaims it.

"Title having reverted to the seller in accordance with the agreement of the parties the goods in the warehouse were constructively delivered upon an express contract to deal with them pursuant to the seller's directions.

"It is obvious that the bailee, whatever the character may be, is bound upon request to redeliver the thing bailed to the lawful owner. This buyer's explanation of non-negligence on its part is solely that the goods were attached in Italy. This attachment however, does not release the buyer from its obligation to return the goods."

Tinplate Purchasing Corp. v. Tuteur & Co., 204 M.Y.S. 2d 809 June 23, 1960

Termination Clause Legal If Buyer Pays Costs

A contract between the Western Electric Co. and the United States Government for a radar installation included a $2½ million subcontract to the Zenith Plastics Co. for a parabolic reflector antenna assembly. Zenith in turn, subcontracted with U. S. Propellers, Inc. to supply 140 of these reflectors. That contract contained the clause: "The buyer may terminate work under this order in whole or in part at any time by written or telegraphic notice.

The Seller Will Stop Work

"Such notice shall state the extent and effective date of such termination; and upon receipt thereof the seller will, as and to the extent directed by the buyer, stop work under this order and the placement of further orders or subcontracts hereunder, terminate work under orders and subcontracts outstanding hereunder and take any necessary action to protect property in the seller's possession in which the buyer has or may acquire an interest."

An industry custom, recognized by all those involved in this controversy, grants the buyer an unrestricted right to cancel the purchase order at his convenience, whenever a contract includes a termination clause. However, U. S. Propellers sued the Zenith Plastics Co., contending that while Zenith had such a right under the contract that right could not be exercised to terminate an

agreement for "unrestricted purposes."

In denying U. S. Propellers a recovery of damages for what it contended had been a breach of contract, the federal court said: "Actually the termination clause in the contract is by no means unrestricted. While the right to terminate is unrestricted the exercise of that right imposes certain obligations and burdens on the buyer. In the event of termination Zenith was required to pay termination charges. It included reimbursement of all of U. S. Propeller's expenses."

U. S. Propellers, Inc. v. Zenith Plastics Co., 10 Cal. Rep. 137, Dec. 29, 1960

Remembered "Trade Secrets" Are Not Secret

A sales engineer for a New Jersey manufacturer of plastic extruding machines left its employ and organized his own corporation, financed in part by one of the customers of this former employer. The manufacturer promptly sued for damages and asked for an injunction prohibiting disclosure or use of its trade secrets.

The court ordered the engineer to return the drawings and blueprints he had taken when he left. It then said: "As an employee he was an agent of his employer but after the termination of that agency he was under no duty not to compete with his former employer.

"However the termination of the agency did not authorize him to use or to disclose to third persons on his own acount or on account of others in competition with his employer, or to its injury, trade secrets, written lists of names or other confidential matters given to him only for the employer's use or acquired by him in violation of duty.

"He was entitled to use general information concerning the method of business of the employer and the names of customers retained in his memory, if not acquired in violation of his duty as employee. Even before the termination of his employment he was entitled to make arrangements to compete except that he could not properly use confidential information peculiar to his employer's business and acquired therein.

"He was not entitled to solicit customers before the end of his employment nor could he properly do other similar acts in direct competition with the employer's business.

"Therefore, while this employee is obligated to return to his employer whatever customer lists, price and cost data he has which may belong to that employer he is under no obligation to force himself to forget what he may recall of the information contained therein. Indeed such a directive would be an absurdity because it would be unenforceable."

Midland-Ross Corp. v. Yokana, 185 F.S. 594, N.J., July 22, 1960

General Statement Is No Warranty

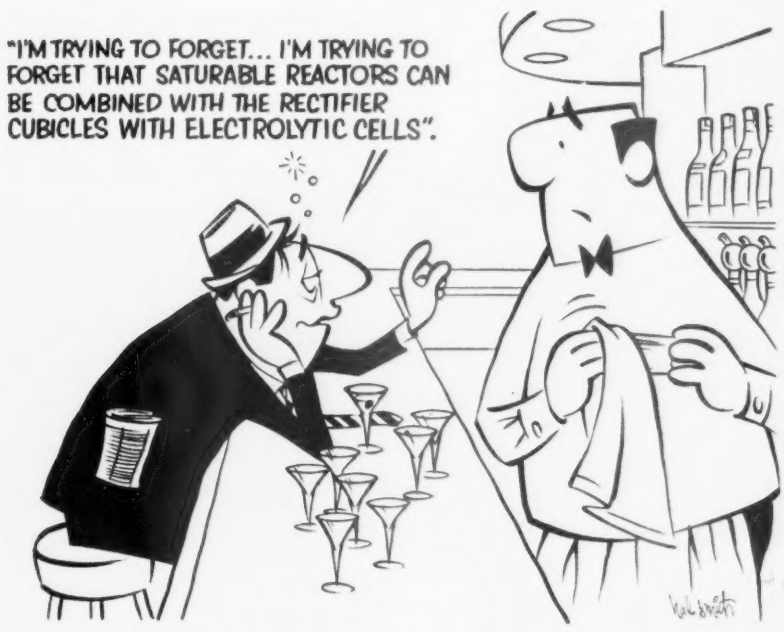
In buying a bulldozer and a loader a contractor gave in payment a promissory note secured by a conditional bill of sale. With the equipment he received a manual of instructions on the back of which was printed the statement that the warranty of the manufacturer was, "For six months or five hundred hours of usage (whichever terminated first) after date of sale except that the transmission is warranted for a period of one year or one thousand hours of usage.

"There is no express, implied or statutory warranty by the manufacturer other than herein set forth and no dealer, company representative or other person is authorized to make any warranty on behalf of the manufacturer other than or different from the terms hereof."

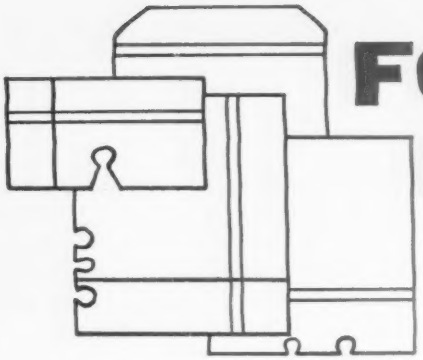
This so-called warranty was neither signed nor did it identify or refer to any particular purchaser or machine. Within a few days after delivery difficulty arose. The brake system had to be replaced. The track frame, oil filter and other parts failed to function properly.

When the unpaid balance for this machine had been reduced to $11,867.63 the dealer sued to

(Please turn to page 192)



"When he terminates his employment, the employee is obligated to return to his employer whatever customer lists, and price, cost, and engineering data that belong to his employer. But he is under no obligation to force himself to forget what he may recall of the information contained therein."



FORMS FORUM

This article is one of a series illustrating and explaining the use of various purchasing department forms. All forms described in this series have been selected from representative purchasing organizations around the country. Shown here are two examples of the way a purchase order can be combined with another form to reduce paperwork.

VENDOR _____

ADDRESS _____ DATE _____ ORD

QUANTITY	DESCRIPTION	WANTED	OR'D BY	PRICE	ACCT. NO.

PURCHASE ORDER

LIPPMANN MANUFACTURING WORKS, INC.

MANUFACTURERS OF CRUSHING, SCREENING & CONVEYING MACHINERY SINCE 1923

4603 WEST MITCHELL STREET • MI 5-5544 • MILWAUKEE, 14, WISCONSIN

N 1577

TO

ABOVE NUMBER MUST APPEAR ON CORRESPONDENCE, INVOICES, SHIPPING PAPERS, CONTAINERS, ETC.

PLEASE ENTER ORDER FOR MATERIAL SPECIFIED BELOW TO BE SHIPPED AS SPECIFIED.

ROUTE VIA | F. O. B. | DELIVERY WANTED | DATE

ACCT. NO.	QUANTITY	DESCRIPTION	UNIT PRICE	DISCOUNT	TOTAL

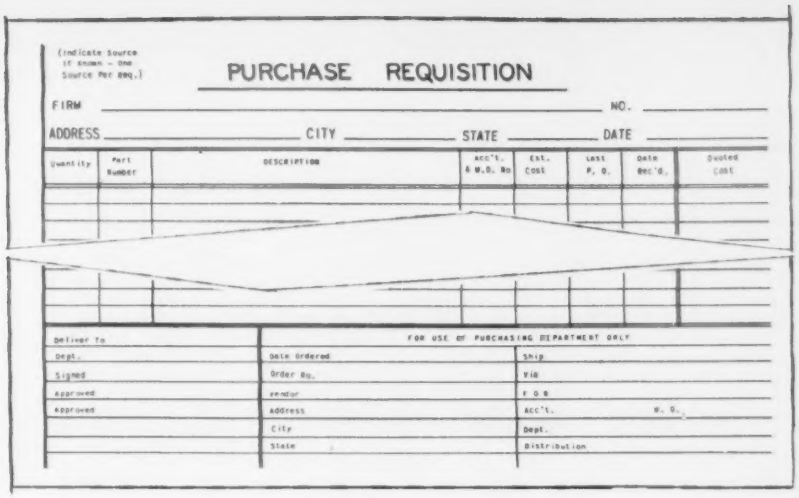
INSTRUCTIONS: ACCEPTANCE OF THIS ORDER SUBJECTS YOU TO CONDITIONS & INSTRUCTIONS AS SHOWN ON FRONT & BACK HEREOF. ACKNOWLEDGE AT ONCE. ACKNOWLEDGMENT MUST SHOW PRICE & DELIVERY. MAIL INVOICES IN TRIPLICATE. THIS ORDER IS PLACED WITH YOU SUBJECT TO CANCELLATION BY US WITHOUT CHARGE UP TO 30 DAYS BEFORE SHIPPING DATE REQUESTED BY US OR DATE GIVEN BY YOU, IF BEYOND OURS.

LIPPMANN MANUFACTURING WORKS, INC.

BY _____

VENDOR'S COPY

Combination requisition (top part of form) and purchase order (8½x11) has reduced paper work considerably for C. L. Fricker, purchasing agent at Lippmann Mfg. Works, Milwaukee, Wis. He gets requisitions from the production manager (a few doors away), makes necessary checks, inserts vendor's name and passes the forms to a typist. When the typist inserts the combination form in her typewriter, she has all the information she needs to complete the order. As the facts on the requisition are of no interest to them, copies going to the vendor, accounting and production control are perforated so that the requisition can be separated from the p.o.; the copy which remains in purchasing is not perforated. As a result, Fricker has a complete record of the transaction on a single standard-size sheet.



(Indicate Source If Known – One Source Per Req.)

PURCHASE REQUISITION

FIRM _____ NO. _____

ADDRESS _____ CITY _____ STATE _____ DATE _____

Quantity	Part Number	DESCRIPTION	Acc't. & W.O. No.	Est. Cost	Last P. O.	Date Rec'd.	Quoted Cost

Deliver To	FOR USE OF PURCHASING DEPARTMENT ONLY	
Dept.	Date Ordered	Ship
Signed	Order No.	Via
Approved	Vendor	F. O. B.
Approved	Address	Acc't. W. O.
	City	Dept.
	State	Distribution

Purchase requisition (11x8½) used by Apex Smelting is a two-part form. One copy is retained by requisitioner and the original, or blue copy, is forwarded to purchasing.



PURCHASE ORDER

APEX SMELTING COMPANY

ALUMINUM - MAGNESIUM - ZINC ALLOYS

6700 GRANT AVENUE DIAMOND 1-0060

CLEVELAND 5, OHIO

P-CL

THIS NUMBER MUST APPEAR ON ALL INVOICES, B/L'S, CASES, BUNDLES, PACKING LISTS & CORRESPONDENCE.

To

DATE | DELIVERY REQUIRED OUR PLANT BY | DEPARTMENT | F. O. B. | SHIP VIA

QUANTITY	PART NO	DESCRIPTION	ACCT NO	PRICE

MAIL INVOICE IN DUPLICATE ON DATE OF SHIPMENT

This order is not valid unless signed by an official of this company. If material is not in accord with this order, shipper agrees to accept its return, and that all goods ordered above shall comply with all federal laws relative thereto, and that you will defend and save harmless this company from loss, cost or damage by reason of actual or alleged infringements of letters patent concerning same. No allowance will be made for packing, cartage or crating unless stated herein. Terms: All invoices subject to cash discount 1st to 15th payable on 20th inst; 16th to 31st on 15th prox.

APEX SMELTING COMPANY

By _____ PURCHASING AGENT

PLEASE RETURN ATTACHED ACKNOWLEDGMENT AT ONCE

ASE ORDER

NG COMPANY

SIUM - ZINC ALLOYS

DIAMOND 1-0060

S, OHIO

P-CL

THIS NUMBER MUST APPEAR ON ALL INVOICES, B/L'S, CASES, BUNDLES, PACKING LISTS & CORRESPONDENCE.

F. O. B. SHIP VIA

ACCT NO	PRICE

FREIGHT

RECV. REPORT SECT. - TRAVELER

R. A. Sferry, purchasing agent, Apex Smelting Co., Cleveland, recently combined his receiving report and purchase order to make a single 8½x8½ form. The newly designed form has six parts for the p.o. plus a three-part receiving report (right). The two forms are identical except that, on the receiving report, price columns are blocked out and space is provided at the bottom to post four separate shipments. Also, the receiving report is one-quarter inch longer and is spot-pasted to the p.o. A quick "snap" separates the two forms.

When Does It Pay to Ship By Air Freight Forwarder?



Air freight forwarders provide extra-fast service for those who are willing to pay for it and sometimes the cost is much less than slower methods of transportation.

By Thomas F. Dillon,
Associate Editor

IN ORDER to meet a contract penalty deadline, Carl Colzani, traffic manager at Federal Pacific Electric Company, had to ship two packages of parts, weighing 935 pounds, from Newark, N. J., to a job site in Seward, Alaska.

Colzani selected an air freight forwarder to handle the shipment. The shipment left Newark at 7 p.m. on the twelfth of the month and was delivered before noon on the fourteenth, in time to meet the deadline.

This is typical of the kind of service you can get from an air freight forwarder. He serves as middleman between the customer and the airline and is licensed by the Civil Aeronautics Board to operate as an indirect air carrier. He is authorized to publish rates and tariffs and to issue airway bills on both national and international shipments.

The air freight forwarder's profit is based on the transportation principle that it costs less per pound to ship a large volume than it does to ship a small volume. He assembles and consolidates small shipments to bring the aggregate weight over 100 pounds, where the lower general or commodity rates go into effect. He makes his money on the spread between the rates on smaller and larger volume shipments.

Growth of the air freight forwarder industry has been impressive. Emery Air Freight, the nation's largest air freight forwarder, handled 1000 shipments in 1946 and 620,000 shipments in 1960. In 1946, the company had an average of 23 accounts each month. In 1960, the figure was 16,000. By the end of its first year, the company had four offices and 31 employees. It now has 54 offices, 15 overseas, and almost 600 employees.

Assures Fast Delivery

What can an air freight forwarder do for a P.A. that a regular airline cannot do? The forwarder's biggest sales points are one-carrier responsibility for both ground and air transportation, and fast, personalized service to off-line cities as well as airport cities.

The P.A. who uses air freight forwarder service deals only with the air forwarder and may not know or care which airline actually transported his shipment. Any questions concerning the shipment, such as claims for damage, tracing the shipment, etc., are directed to the forwarder. The P.A. is buying a complete, door-to-door air transportation service, without being involved in the details of movement.

At the same time, the air freight forwarder, who combines the P.A.'s shipment with other shipments to make larger, lower-rated shipments, is himself a customer of the airline. As one of the airline's principal customers, with offices, communication facilities and freight handling equipment at airports throughout the country, the air freight forwarder can insure that his shipments will not be bogged down through ground handling delays.

Before each air freight forwarder shipment arrives, scheduled arrival time and flight number are teletyped to the air freight forwarder agent at the destination airport. Arrangements are made by the local agent for transfer of the shipment to another airline or for ground transportation.

Such conveniences as the availability of 24-hour pickup and delivery service seven days a week, door-to-door service at no extra charge, and notification to the shipper of the time of delivery and the name of the person signing the delivery receipt, have helped make air freight forwarders popular.

Special Service for P.A.'s

One innovation has been specifically designed to help the P.A. Emery Air Freight calls it APS or Air Procurement Service. P.A.'s who want to use air freight forwarder service on specific purchase orders can notify the local Emery office of the vendor's name, the purchase order number, the name of the person in the vendor's office familiar with the order, and the expected date of the shipment.

This information is then sent by teletype to the Emery office nearest the vendor. That office contacts the vendor to confirm the



Round-the-clock pickup and delivery service, skill in handling delicate shipments, and "custom" transportation features have added much to the growth of the air freight forwarder industry.

shipment date, and if the shipment is delayed by the vendor, the Emery office issues regular progress reports to keep the P.A. informed of the status of the shipment.

Among the group of regular air freight forwarder users is Henry Giese, manager of purchasing and traffic, International Telephone and Telegraph Company Federal Laboratories. Giese uses air freight forwarder service on both inbound and outbound shipments. IT&T is doing missile component work, and transportation is a critical factor in maintaining the production cycle. Inbound subcomponents are unique (in some instances castings are gold plated), and a delivery delay could alter the production cycle.

Giese has been using air freight forwarder service for the past two years, not only for emergency shipments but as a part of his regular transportation pattern. For example, many of Giese's shipments originate in the Chicago area. As shipping dates approach, he notifies the air freight forwarder, who makes all the Chicago area pickups in one day, consolidates the smaller shipments into one large shipment, and then charges Giese the rate that would apply on one large shipment, plus a charge for assembling and consolidating the smaller shipments. These combined charges are less than the charges that would be assessed for handling the numerous small shipments individually.

Other P.A.s and traffic men use air freight forwarder service for different reasons. Joe Baxter, sec-

(*Please turn to page* 190)

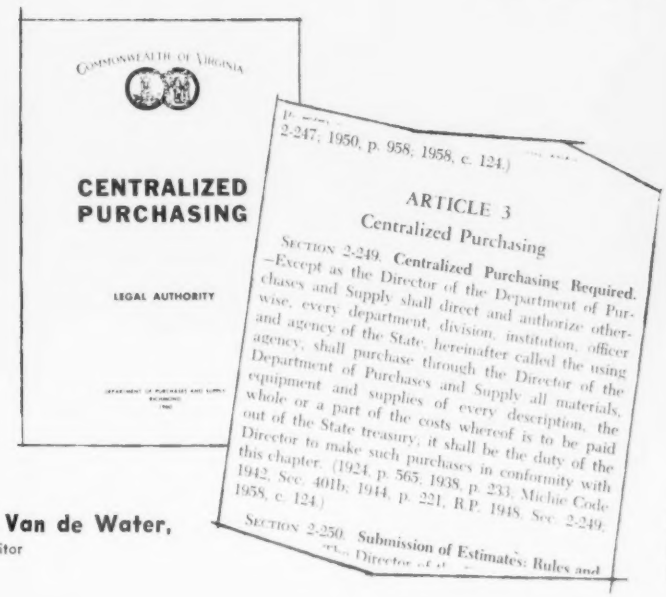
Figuring Freight Costs . . .

In the July 17, 1961 issue of PURCHASING, the article "How to Pick a Carrier" included a Comparison of Transportation Modes, prepared by the General Services Administration Transportation and Public Utilities Service. This chart was meant to be a comparison of "class rated traffic" only. If not used properly, the chart can be misleading. For example, under the REA Express Cost Comparison heading, the following appears:

> "Generally lowest cost commercial mode with most expeditious overall service under 50 lbs. Usually costs more than other surface modes over 50 lbs."

In recent years, REA Express has introduced many lower commodity rates, which replaced higher class rates. Where these lower rates are concerned, the 50 pound weight limits referred to above will not apply. P.A.s are cautioned to determine if a commodity rate is in effect for the items they ship or receive before drawing any conclusions as to cost comparison.

Centralize and Save!


COMMONWEALTH OF VIRGINIA

CENTRALIZED PURCHASING

LEGAL AUTHORITY

2-247; 1950, p. 958; 1958, c. 124.)

ARTICLE 3
Centralized Purchasing

SECTION 2-249. **Centralized Purchasing Required.** —Except as the Director of the Department of Purchases and Supply shall direct and authorize otherwise, every department, division, institution, officer and agency of the State, hereinafter called the using agency, shall purchase through the Director of the Department of Purchases and Supply all materials, equipment and supplies of every description, the whole or a part of the costs whereof is to be paid out of the State treasury; it shall be the duty of the Director to make such purchases in conformity with this chapter. (1924, p. 565; 1938, p. 233; Michie Code 1942, Sec. 401b; 1944, p. 221; R.P. 1948, Sec. 2-249; 1958, c. 124.)

SECTION 2-250. **Submission of Estimates; Rules and**



Purchasing Director G. Lloyd Nunnally: His two goals—cost reduction and service.

By John Van de Water,
Technical Editor

Excerpts from state law form a useful purchasing manual and establish department's authority and responsibility.

G. LLOYD Nunnally has had no trouble asserting purchasing authority. As director of the department of purchases and supply of the Commonwealth of Virginia, he reports directly to the governor of the state and his responsibilities are clearly set forth by law.

With the sort of backing many industrial and public purchasing agents are still seeking, Nunnally has chalked up a number of money-saving achievements. By using centralized purchasing Nunnally and his staff have been able to:

—Standardize specifications for many commonly used products and set up a testing procedure to make sure vendors conform;

— Establish a number of expert committees to help buy specialized or technical materials and equipment;

— Set up a central warehouse which makes it possible to buy in larger volume. The warehouse also reduces storage space needed by other state agencies.

— Encourage local political subdivisions such as cities, counties, towns, school boards, etc., to use central purchasing facilities for their own requirements;

— Develop a mechanical order-writing and tabulating system which speeds purchasing paperwork, increases the amount of information that purchasing can give to other agencies.

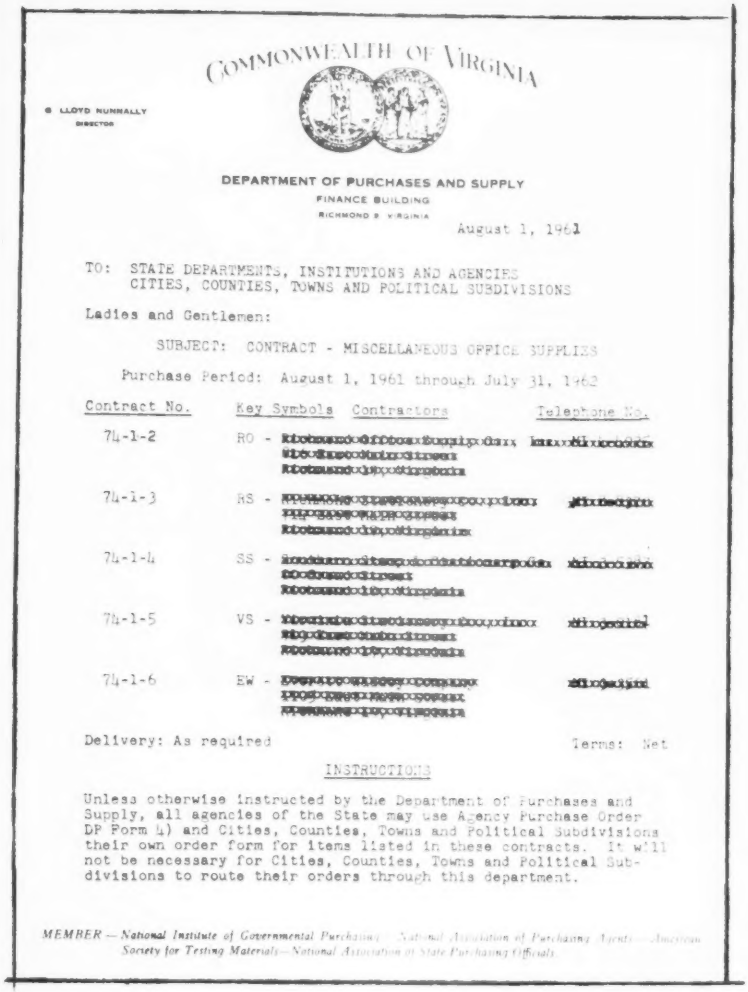
— Produce an outstanding welcome booklet for suppliers.

Virginia's purchasing group has full department status, making it the equal of other top state units such as accounts, treasury, taxation, police, highways, health, and agriculture. Its legal authority is contained in Section 2 of the state code. Nunnally has had part of this law reprinted in booklet form as an effective purchasing manual. It is distributed to the using agencies, departments, institutions, and vendors.

Need for Standardization

Yearly purchases are running in the $28 million range for food and supplies, plus an additional $2.5 million for printing. These figures are constantly growing as the department increases the scope of its purchases and takes on buying responsibilities for additional state agencies, and for counties, cities, and towns. Nunnally's 1960 annual report to the governor, for instance, listed purchases for 124 different agencies; by mid-1961 the number had risen to 133 and it is still going up.

Obviously, the demands of so many users would make econom-



COMMONWEALTH OF VIRGINIA

G. LLOYD NUNNALLY
DIRECTOR

DEPARTMENT OF PURCHASES AND SUPPLY
FINANCE BUILDING
RICHMOND 9, VIRGINIA

August 1, 1961

TO: STATE DEPARTMENTS, INSTITUTIONS AND AGENCIES
CITIES, COUNTIES, TOWNS AND POLITICAL SUBDIVISIONS

Ladies and Gentlemen:

SUBJECT: CONTRACT - MISCELLANEOUS OFFICE SUPPLIES

Purchase Period: August 1, 1961 through July 31, 1962

Contract No.	Key Symbols	Contractors	Telephone No.
74-1-2	RO -	[redacted]	[redacted]
74-1-3	RS -	[redacted]	[redacted]
74-1-4	SS -	[redacted]	[redacted]
74-1-5	VS -	[redacted]	[redacted]
74-1-6	EW -	[redacted]	[redacted]

Delivery: As required Terms: Net

INSTRUCTIONS

Unless otherwise instructed by the Department of Purchases and Supply, all agencies of the State may use Agency Purchase Order DP Form 4) and Cities, Counties, Towns and Political Subdivisions their own order form for items listed in these contracts. It will not be necessary for Cities, Counties, Towns and Political Subdivisions to route their orders through this department.

MEMBER — National Institute of Governmental Purchasing — National Association of Purchasing Agents — American Society for Testing Materials — National Association of State Purchasing Officials

ical purchasing exceedingly difficult unless there were some sort of standardization. As a result Nunnally is making an all-out effort to standardize materials, either by setting up specifications or by limiting purchases to selected brands or grades.

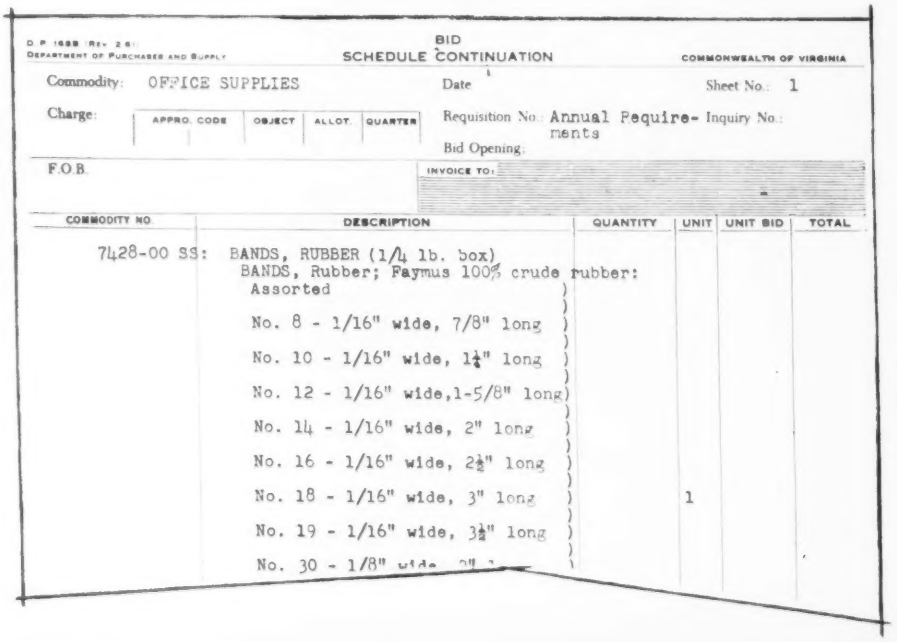
With the help of experts from state agencies, one purchasing analyst spends much of his time writing new specifications. In addition, Nunnally has retained a firm of inspection engineers, Froehling & Robertson, Inc., to assist in this task and to run a testing program to insure suppliers conform to the standards.

Quality Stays the Same

As an example of the importance of standardized specs, Nunnally points out that by changing to a private brand of coffee, purchasing has been able to get the price down from 80 cents per pound to an average 44 cents per pound. Since the department buys 90,000 pounds of coffee quarterly, the saving from standardization adds up to about $130,000 a year. This saving was achieved without a reduction in quality. In fact, Nunnally asserts, "the private specification has assured us quality that is uniform and dependable."

Although returns may not al-

Detailed schedule (R.) and letter (above) show users where to purchase office supplies and at what prices. The two letters after the commodity number (first column in form at right) are the vendor code. Users mail orders directly to suppliers; yearly contracts are negotiated by the department of purchases.



D.P. 1688 (Rev. 2-61)
DEPARTMENT OF PURCHASES AND SUPPLY

BID
SCHEDULE CONTINUATION

COMMONWEALTH OF VIRGINIA

Commodity: OFFICE SUPPLIES Date Sheet No.: 1

Charge: APPRO. CODE | OBJECT | ALLOT. | QUARTER

Requisition No.: Annual Requirements Inquiry No.:

Bid Opening:

F.O.B.

INVOICE TO:

COMMODITY NO.	DESCRIPTION	QUANTITY	UNIT	UNIT BID	TOTAL
7428-00 SS:	BANDS, RUBBER (1/4 lb. box) BANDS, Rubber; Faymus 100% crude rubber: Assorted No. 8 - 1/16" wide, 7/8" long No. 10 - 1/16" wide, 1¼" long No. 12 - 1/16" wide, 1-5/8" long No. 14 - 1/16" wide, 2" long No. 16 - 1/16" wide, 2½" long No. 18 - 1/16" wide, 3" long No. 19 - 1/16" wide, 3½" long No. 30 - 1/8" wide, 2"		1		



In writing purchase orders, operator uses calculator to compute price extensions and totals. Results are fed automatically into typewriter and associated key punch.

ways be so spectacular, there's no doubt that standardization is paying off for Nunnally. By specifying a single grade of carbon paper the state has been able to write a single contract for a year's supply (deliveries, of course, are split). The savings are expected to run into a few thousand dollars. Similarly, standard paint specifications have made it possible to write an annual paint contract for the first time. Now all paint is purchased from a single supplier who also furnishes engineering services when needed. Purchasing is going one step further by reducing the number of paint colors used. Five interior colors, for example, are expected to cover the needs of all the state agencies.

It is not feasible, of course, to write specifications for all supplies. In many instances it is simpler to select standard brands and grades already on the market. That's what Nunnally has done with six contracts for miscellaneous office supplies. For the using agencies, the contracts are condensed into a 23-page schedule, showing the authorized brand and grade designations, unit prices, and the contract supplier for each item. Besides assuring volume prices, the system relieves central purchasing of a lot of paperwork. Agencies place their orders directly with the vendors and send purchasing a copy of the purchase order as a record.

In setting standards, purchasing does not reach decisions by itself. For advice it depends on experts from other departments, on consulting engineers, and on the vendors themselves. Rather uniquely, however, purchasing has standing committees which are called in whenever buyers need information on specifications or requirements.

The Committees' Functions

Three of these committees are particularly important. A value analysis committee — four engineers in the architectural, mechanical, and electrical fields — meets to consider specific major requirements. One of its recent jobs, for instance, was to study an appropriation for $60,000 worth of hospital furniture. The committee does not make the buying decision. Instead, it reviews bids, compares equipment, and checks value in terms of price, quality, and application. It then makes its expert recommendation to the buyer.

Scheduled to met quarterly (although it often convenes each month) is another committee, the food council. Made up of food service directors from state colleges, hospitals, and penal institutions, the council discusses and makes recommendations relative to specifications, standards, market conditions, and institutional needs for the many food staples bought by central purchasing.

A drug committee, made up of experts from medical schools, hospitals and health boards, helps set standards and requirements in its field. Purchasing buys all drugs on annual contracts. Before the buyer sends out bids, he meets with the committee to get the facts on requirements, new drugs under consideration, quality levels, and also to iron out special problems.

Nunnally reports that the committee system makes it possible for purchasing to get expert advice without relinquishing any of its authority. And by keeping in close touch with both users and vendors, buyers gain valuable experience.

But Nunnally does not depend on astute buying and careful analysis alone to save money. "We try to save wherever we can," he says. "One of our more successful cost reduction efforts was setting up a central warehouse. This made it possible to save many thousands of dollars, through bulk buying and by helping using agencies cut some of their own costs."

Central Warehouse Saves Money

Established in March, 1960, the state central warehouse was first used to store food staples, but soon was expanded to include paper products, janitorial supplies, and paints. Today it supplies these products to state agencies on a regular delivery schedule. Nunnally points out that establishing a warehouse has probably saved more money than any other move made by purchasing. As examples, he cites:

Storage space. By making it possible to provide regular, dependable deliveries, the central warehouse has enabled agencies to reduce their own storage spaces and to cancel plans for expansion. In one case a state hospital

dropped plans for a $19,000 storage area because it could get deliveries on a ten day basis from the central warehouse. The University of Virginia benefited in a similar way. Another advantage of the central warehouse: it prevents obsolesence of slow moving items in local stores.

Prompt deliveries. Exact trucking schedules for deliveries from the warehouse make it unnecessary to expedite individual orders, eliminate run-outs and shortages, make costly emergency purchases a thing of the past.

Bulk purchases. Purchasing can now buy many supplies and foods in carload lots for central warehouse delivery, instead of placing numerous small orders for delivery all over the state. In most cases, bulk purchases cut prices more than enough to offset the extra cost of warehousing and distribution. For example, carload lots of 60,000 pounds of citrus juices cost $2.27 per case, compared to a former cost of $3.30 per case.

Without speculation, purchasing can time its purchases to buy in bulk when the market is right. When the price of sugar was rising rapidly, the department was able to purchase a large quantity at $9.00 cwt. Had storage space not been available, it would later have had to pay $10.15 cwt. Similarly, while the state is not normally in the market for distress merchandise, it did recently have the opportunity, because it had storage space open, to buy selected items from a wrecked shipment of pineapple valued at $3268 for just $1000, including all inspection and repackaging costs.

Pay Less for Supplies

All warehouse costs, including depreciation, are paid from income —derived from a 4% markup on prices paid by using agencies. In spite of this markup, users still pay less for supplies than they did before, in addition to being able to reduce their own inventory costs. During fiscal 1961-62 the warehouse expects to ship over $2 million worth of supplies. In one month recently it moved 43 trailer loads over distances as far as 320 miles away, plus making many local deliveries in small trucks.

As an incidental advantage, the warehouse saves purchasing quite a bit of paperwork. The total number of purchase orders sent out is obviously reduced. So is the number of requisitions. Now, using agencies send in a general warehouse requisition one week before shipment, instead of making out individual requisitions for each type of item. Purchasing saves time by using the requisition as a charging document, a priced copy of which is sent to accounting.

Speaking about purchasing's role, Nunnally declares:

"Although our primary objective is to provide food and supplies to the state agencies, we want to be considered a service group for all purchasing activities in the Commonwealth." Already the department supplies hundreds of thousands of dollars of supplies each year to cities, counties, and towns. The figure is increasing steadily.

Get In on Ground Floor

Furthermore, Nunnally doesn't depend on established routine alone to make sure state agencies get the best from the department of purchases. On important purchases he makes certain his department gets in on the ground floor. For example, Nunnally's office receives a copy of each appropriation for capital outlays granted to any state agency by the governor. As soon as he receives this copy, Nunnally writes the agency head offering assistance in selecting and specifying the needed equipment.

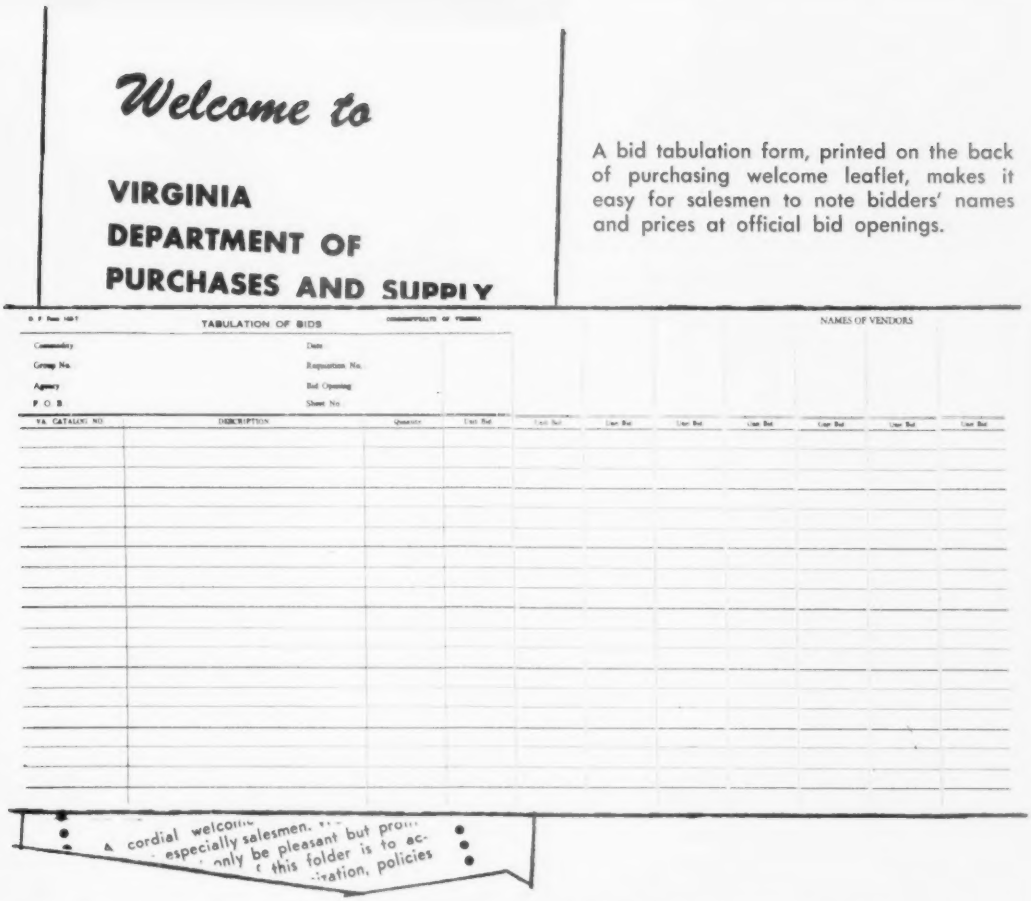
There is no question that purchasing is competent to provide such help. For instance, recently the chief psychiatrist and the director of a penal institution visited purchasing to discuss purchase sources for a psychiatric instrument. As it turned out the department had already purchased seven similar instruments for state hospitals and was thoroughly familiar with the problem.

Write 150 Orders Per Day

The department's constantly increasing workload (from fiscal 1960 to 1961 the dollar volume of purchases increased by almost 50%) meant that Nunnally had to put a brake on paperwork before it got out of hand. Since the beginning of the year, therefore, the department has been writing orders on a combination IBM typewriter, card-punch and calculator. Three girls, working in rotation—a system which Nunnally finds is best to keep production high—write about 150 purchase orders a day on the machine. As the order is typed, the punch attachment automatically records essential information on a tabulating card. To compute price extensions and totals, the operator uses



In one recent month Virginia's purchasing warehouse shipped 43 trailer loads of food and supplies to consuming agencies. Central distribution not only reduces buying costs but also helps users cut down on local storage space.



a calculator that is wired into the system. Results go on both purchase orders and tab cards without additional typing.

The new system gives a complete record of each purchased item and eliminates all manual accounting and tabulating. From the cards, the state accounting department's tabulating section prepares a monthly report that is complete two days after the end of each month. A complete purchasing record, the reports lists the order date, order number, agency code, commodity code, description, quantity purchased and price.

Monthly Report Helps Buyer

This report provides accurate accounting figures and also enables the buyer to check prior orders and prices. If he needs more detailed information, he can refer to the original order which is indicated by number on the report. In most cases, however, the monthly report provides all necessary information. "It is surprising how much time it saves both buyers and clerks," says Nunnally. "Punched cards have made it possible for us to meet the increased purchasing load without adding personnel. In fact, so far we have not had to replace two people who left our staff recently."

Because of the volume and variety of supplies purchasing buys, the department naturally has a great many vendor contacts. Buyers talk to dozens of salesmen every day. To make it easy for those who call, Nunnally has prepared an extremely helpful welcome leaflet. Pointing out that "purchasing departments are busy places, especially this one, as we buy practically everything produced," the booklet describes the purchasing organization, its responsibilities under state law, bidding procedures, the warehouse activity, and inspection and testing procedures.

Of particular interest is the last page of the leaflet, a bid tabulation form, on which salesmen can note the names of bidders and prices quoted when they attend one of the frequent bid openings the department holds.

Promote Purchasing

Nunnally has not ignored the opportunity a welcome leaflet gives to push purchasing. "We are pleased to be considered as a department of general service within the framework of our legislative responsibility," he writes. "This is accomplished through competitive bidding, research and development, value analysis and standardization, professional development, and public relations. Through this organized effort we are constantly striving to do a better professional job of purchasing and supply management, and to make it easier for sellers to do business with the state, thus obtaining 'more value for the tax dollar.'" ► END

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EVERY GRAMIX® PART IS

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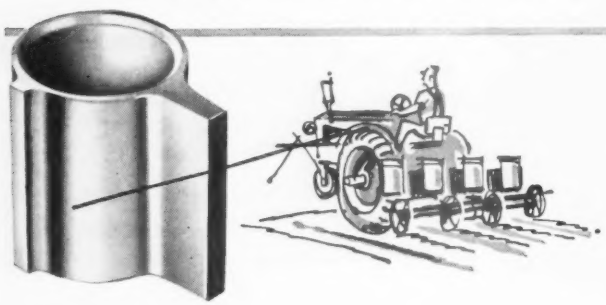


One of the most important factors to consider when purchasing powder metal parts is that of successful part performance; for a part to successfully perform its job, all of its physical and metallurgical characteristics must be suited to the application.

GRAMIX Products of Powder Metallurgy are always *Application Engineered,* which means product is specially matched to each specific application. From an almost unlimited variety of metal mixtures, one alloy is blended that contains the required properties and characteristics of the finished part; *all* aspects of part design and conditions under which it must operate are taken into account. Only then is the GRAMIX part produced.

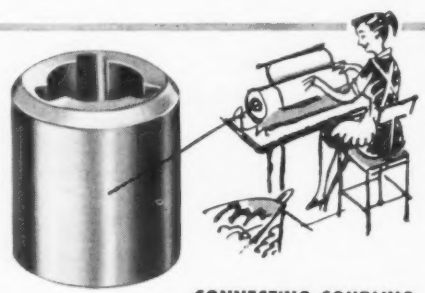
Eight of these *Application Engineered* GRAMIX parts are shown here. Each precisely suits the requirements of its job . . . each is the best part available for the job.

When you specify a GRAMIX part, you can always be sure that it has been *Application Engineered* for successful performance, long life and complete reliability. For more information on *Application Engineered* GRAMIX parts, write for Engineering Handbook G-55.



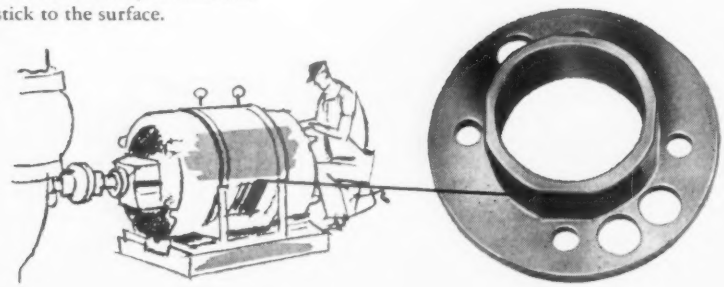
CORN SEEDER

GRAMIX was the material specified for this corn seeder part because the surface finish obtainable with the alloy used reduced the tendency of material to stick to the surface.



CONNECTING COUPLING

The connecting coupling employed in a small home ironer is formed from a special GRAMIX hardened steel alloy; it offers low wear and shock resistance.



CONTAINER COVER END CAP

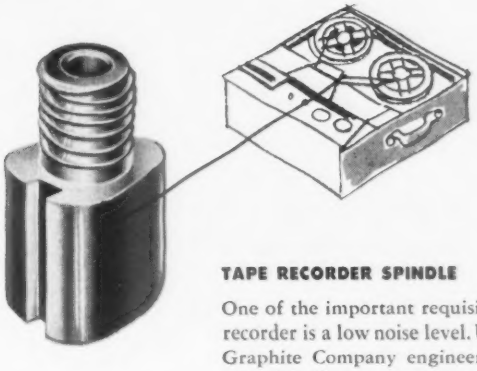
Great savings were realized when retainer caps for certain types of electric motors were made of GRAMIX.

This process made it simple and economical to mold the multiple holes to precise tolerances without extra operations.



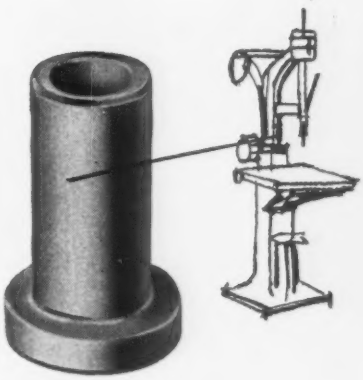
HELICOPTER THRUST WASHER

The outstanding features of the GRAMIX alloy specified for this thrust washer are a dependable and consistent friction and wear pattern as well as a fine surface finish.



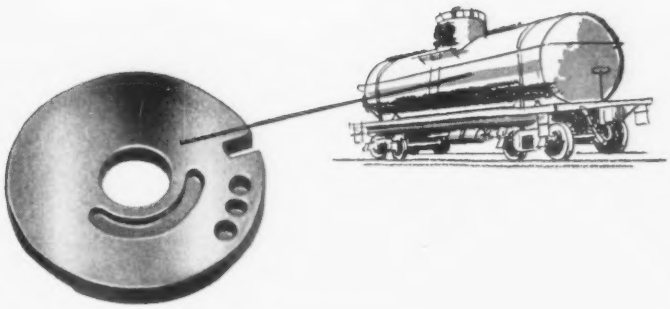
TAPE RECORDER SPINDLE

One of the important requisites in a tape recorder is a low noise level. United States Graphite Company engineers developed a special alloy to meet these requirements in the GRAMIX spindle.



GUIDE BEARING

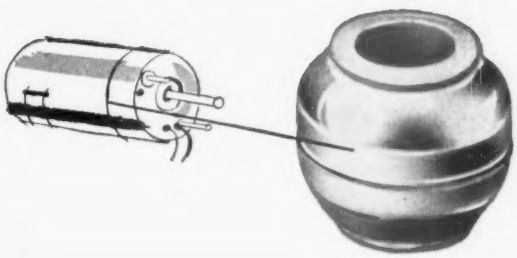
Built-in lubrication and low friction to reduce heat are important features of the GRAMIX alloy chosen for this guide bearing.



LIQUID PUMP END PLATE

This end plate is typical of many parts employed in liquid pumps of many types.

It is made from a wear resistant bronze alloy that was developed for pump applications.



FRACTIONAL H.P. MOTOR

The GRAMIX bearing for this Fractional h.p. motor was developed from a special low noise level alloy.

Its self-lubricating properties were also an important consideration in specifying GRAMIX.

METAL POWDER mpi INDUSTRIES FEDERATION

X-296-2

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DIVISION OF THE WICKES CORPORATION, SAGINAW 15, MICHIGAN

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For More Facts Write No. 199 on Information Card—Last Page

Stretch Process Yields Stronger, Cheaper Pressure Vessels



A completed pressure vessel is removed from the forming tank after cryogenic stretching. Gloves are needed because metal is still at temperature of liquid Nitrogen (—320 F).

A CRYOGENIC metalworking process, which produces significant improvement in the strength and ductility of steel vessels and tubing, also promises sizable savings in process cost.

Developed by Arde-Portland, Inc. of Paramus, N. J. and called "Ardeforming", the process is less expensive than alternative manufacturing methods based on heat treating. In Ardeforming, cylinders are rolled and welded, cooled to —320 F, and then stretched with gaseous Nitrogen. Vessels fabricated from 301 stainless steel have been stretched about 13% in diameter to yield ultimate tensile strengths of 260,000 psi.

Although the process is of prime importance in the manufacture of rocket engine cases—where the increased tensile strength can be translated directly into significant weight reduction—it is rapidly finding application in the fabrication of thin-walled pressure vessels, mobile storage containers, and high-strength tubing.

The company has already fabricated spheres up to 16 in. in diameter and cylinders up to 4 ft long by 12½ in. in diameter. Because the process requires no heat treating furnace, however, the size of the product it can produce is unlimited. For the same reason, savings in fabricating costs are particularly significant.

As part of the development program, the company compared the cost of Ardeforming with that of conventional metalworking processes. One rocket case made of 301 stainless steel to a yield strength of 240,000 psi by cryogenic stretching would cost 15% less than a heat treated case of 4130 stainless steel with a yield strength of 170,000 psi and 38% less than vacuum melted D6AC steel heat treated to a strength of 240,000 psi. An Ardeform manufacturing set-up, capable of producing 25 cases per shift, would cost somewhat less than $35,000.

The new metal forming technique is based on the principle that cryogenic stretching of certain stainless steels markedly improves their strength at room temperatures. The process strengthens the welds as well as the base material, whereas in heat treating welds may lose as much as 80% of their yield strengths.

The first step in Ardeforming is the fabrication of an undersize vessel called the preform. Inexpensive roll and weld techniques are used. Although good weld quality standards must be maintained, a wide latitude is permitted in dimensional control. All kinks, bends, dents, and distortions are removed.

Write No. 65 on Information Card-Last Page



ELPAR ACRO-SMOOTH TRUCKS
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. . . hauling sand, transferring delicate loads, moving hot castings, carrying heavy loads over rough floors—these are everyday jobs for ELPAR electric power trucks. In these tough foundry jobs, top quality ELPAR trucks pay off. And they will pay off on the toughest jobs in your plant too.

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If you have a gear problem, check with Fairfield. Our engineers are well-qualified to give you expert recommendations. *LARGE or SMALL, your requirements will receive prompt attention.* CALL OR WRITE.

SPUR GEARS—Straight, helical, and internal. Sizes from 16 pitch, 1½" dia., to 1½ pitch, 48" dia.

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SPIRAL BEVEL—Sizes from 16 pitch, 1½" dia., to 1½ pitch, 28" dia.

STRAIGHT BEVEL—Sizes from 16 pitch, 1½" dia., to 1½ pitch, 28" dia.

HYPOID—Sizes from 1½" to 28" dia.

ZEROL—Sizes from 16 pitch, 1½" dia., to 1½ pitch, 21" dia.

WORMS AND WORM GEARS—Worms to 7" dia. Worm gears to 36" dia.

SPLINED SHAFTS — Lengths to 72".

DIFFERENTIALS — 3,000 to 750,000 inch pounds capacity.

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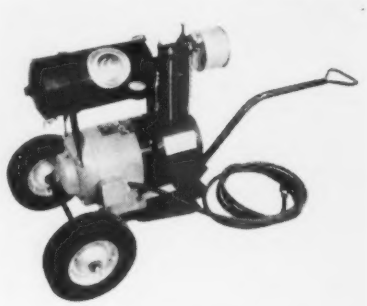
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Products

Compressor Operates Airless Painting Pump



A compressor specially designed for compactness and portability will operate an airless painting pump at commercial, industrial speed from ordinary 110 volt house current. ¾ hp compressor measures only 22 in. long by 14 in. wide by 24 in. high and weighs 137 lbs. An integral unloader is built in the cylinder head so compressor runs only when actually needed. Other features include 10 in. rubber-tired wheels with ball bearings, spring foot, removable draw bar, adequate storage and pulsation chamber with drain cock, 15 ft. of heavy duty rubber-covered cable, and large intake muffler and filter. **Eclipse Air Brush Co., 390 Park Ave., Newark 2, N.J.**

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Four Spray Lubricants Service Fork Trucks



Four lubricants packed in aerosol spray cans are specially formulated for fork lift truck servicing. Fork lift upright lubricant con-

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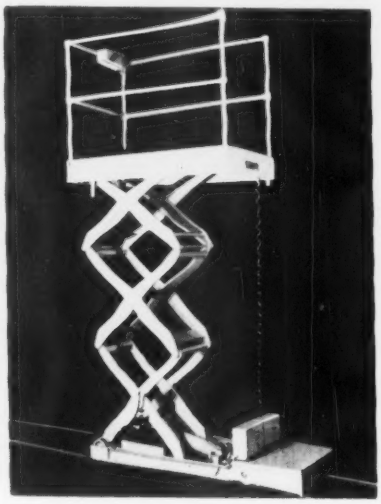
Products

(Continued from page 98)

tains molybdenum disulphite which has superior lubricating properties but will not attract dust or wipe off. Chain and cable lubricant contains graphite particles suspended in solvent, will not drip off slow-speed or idle chains. Battery preservative extends life of battery cables and carriers by preventing corrosion. Penetrating oil cuts through rust, grease, paint and dirt to free frozen joint. Aerosol spray cans make it easy to reach out-of-the-way spots. **Clark Equipment Co., General Service Div., 7300 S. Cicero Ave., Chicago 29, Ill.**

Write No. 19 on Information Card—Last Page

Personnel Lift Solves High-Reach Problems



A triple-scissor personnel lift facilitates warehousing tasks such as order picking, parts storage, or tool and fixture selection. The completely self-contained lift has an extended height of 8 ft, bringing articles on racks or shelves 14 ft high well within the reach of the average size operator. A push button console on the handrail controls ascent, descent, and lateral travel instantaneously. A platform width of 24 in., permits use in narrow spaces. As there is no superstructure to impede his movements, the operator can work both sides of the aisle with equal ease. **Southworth Machine Co., 30 Warren Ave., Portland, Maine.**

Write No. 20 on Information Card—Last Page

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PPG chemicals

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- POSITIVE SEALING UNDER ALL CONDITIONS
- ELIMINATES ALL SPIRAL TWIST FAILURE
- FOUR FLEXIBLE SEALING SURFACES
- LOW FRICTION INSTALLATION
- HIGH DENSITY INJECTION MOLDED
- RUBBER COMPOUNDS TO FIT APPLICATION

POSITIVE SEALING UNDER ALL CONDITIONS—The MR QUAD-RING gives superior sealing in reciprocating, rotary, and static applications at pressures ranging from 0 on up.

ELIMINATES ALL SPIRAL TWIST FAILURE—This costly cause of O-ring failure is eliminated because the relatively square cross-section of the QUAD-RING will not roll.

FOUR FLEXIBLE SEALING SURFACES—give double the sealing effectiveness of the O-ring because of the exclusive seal design. It prevents leakage and requires less squeeze.

LOW FRICTION INSTALLATION—is made possible because of the exclusive quadrilateral design. This permits much higher rotary speeds and gives the seal much longer life.

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RUBBER COMPOUNDS TO FIT APPLICATIONS—MR compounds are designed to give the best possible service, using basic polymers such as natural or synthetic rubber, silicone or any other that will perform best under the specific conditions.

QUAD-RINGS are manufactured under U.S. patents RE 24332 and 2,873,132

FOR MORE INFORMATION ON QUAD-RINGS AND A COPY OF THE MINNESOTA RUBBER FACT BOOK...

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MINNESOTA MR RUBBER

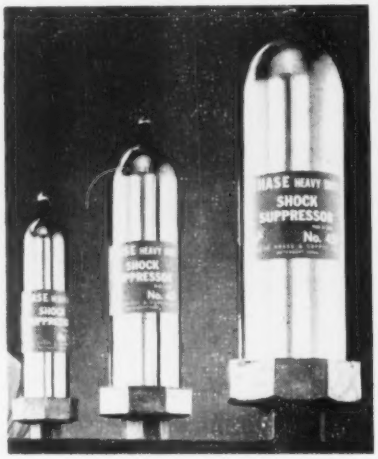
DEPARTMENT 320 • 3630 WOODDALE AVENUE

MINNEAPOLIS 16, MINNESOTA

For More Facts Write No. 206 on Information Card—Last Page

Products

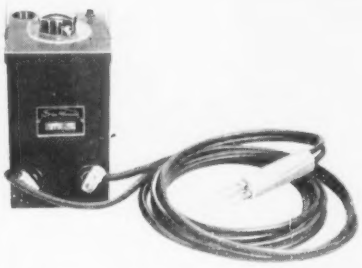
Shock Suppressers Cut "Water Hammer" Damage



Copper "water hammer" shock suppressors are designed to eliminate noise and damaging effect of pressure build-up in water line, caused by sudden stoppage of water flow when faucet or other facility is turned off. Pressure is directed into cylinder-shaped shock absorber where piston is forced up against resilient air cushion, absorbing the force. Device combines advantages of permanent resilient cushion with free floating piston, preventing loose joints, buckling or ruptured lines, and damage to valves and other expensive system components. **Chase Brass & Copper Co., Waterbury, Conn.**

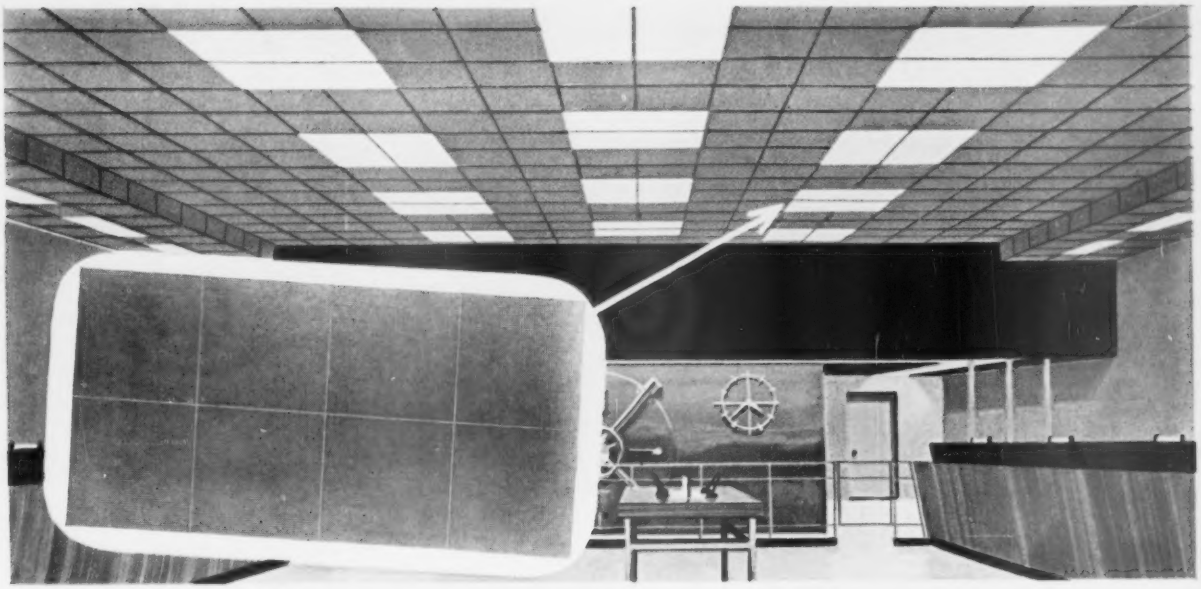
Write No. 21 on Information Card—Last Page

Hot Knife Cuts, Seals Rubber, Thermoplastic



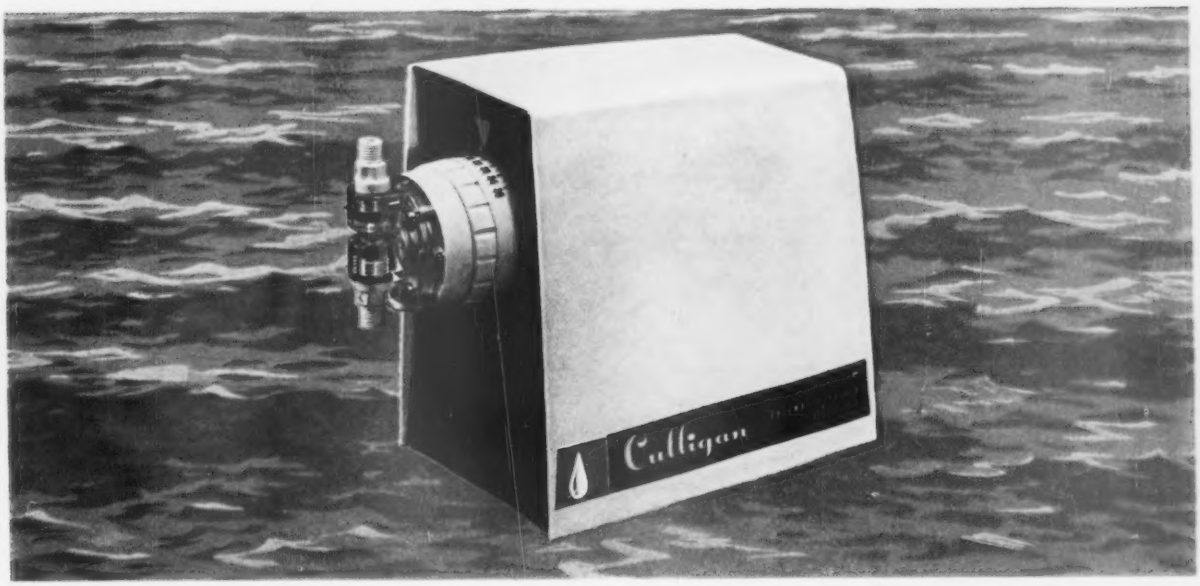
Electrically heated, low voltage hot knives make rubber and thermoplastic sealing and cutting operations easy and economical. Equipped with low voltage power

(*Please turn to page* 108)



Handsome and Hardworking

Plexiglas ... Implex



The new 2′ x 4′ light-control lens shown above is injection molded of crystal-clear PLEXIGLAS® acrylic plastic. PLEXIGLAS provides the *strength . . . freedom from discoloration . . . full utilization of light . . .* and *accurate prismatic structure* that are features of this precisely designed optical element for quality lighting.

IMPLEX® high impact acrylic is used for the one-piece housing—and 16 other molded parts—of the chemical feeder pump for a water conditioning system. IMPLEX assures *toughness . . . resistance to chemicals, corrosion and stain . . . dimensional stability . . . resistance to wear . . . attractive appearance . . .* and *mechanical strength.*

Put the properties of these Rohm & Haas quality molding materials to work for your benefit. Our design staff and technical service representatives will be pleased to help.

ROHM & HAAS

PHILADELPHIA 5, PA.

In Canada: *Rohm & Haas Company of Canada, Ltd., West Hill, Ontario*

For More Facts Write No. 207 on Information Card—Last Page



J-22174



15% IN LIFE-LINE A-C MOTORS. Get 15% **MORE** more motor at no increase in price. Now, **HP!** 1-250 HP totally enclosed motors, with Class "B" insulation as standard, safely handle 15% larger loads, or, at rated capacity, will run twice as long!

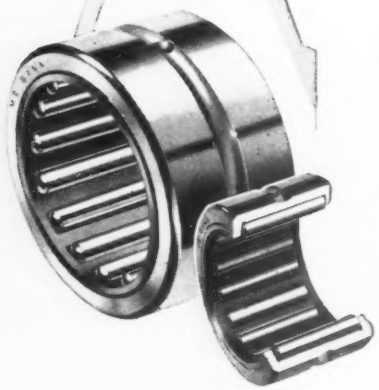
For the added plus of guaranteed protection against motor burnout specify Guardistor® on all Life-Line A-C Motors.

Westinghouse now offers the industry's most complete line of motors, gearmotors, speed reducers and adjustable speed drives. For expert counsel in selecting torque delivery products to meet your specific needs, call your Westinghouse salesman or write Westinghouse Electric Corporation, P.O. Box 868, Pittsburgh 30, Pa. You can be sure . . . if it's Westinghouse

For More Facts Write No. 208 on Information Card—Last Page

McGILL
CAGEROL®
cage type
needle bearings

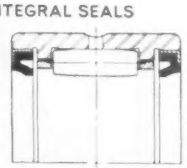
designed
for longer life
under
adverse operating
conditions



CAGEROL cage type bearings can deliver up to ten times more expected life where misalignment and increased speeds exceed the capacities of ordinary end-guided needle bearings. Crowned rollers in tapered retainer pockets provide the balanced roller support that eliminates wear and extends bearing life. Interchangeable with all heavy-duty needle roller bearings, they are available in shaft sizes from .375", with separable inner rings and from .625" without inner rings.

AVAILABLE WITH INTEGRAL SEALS

CAGEROL bearings are also available in a sealed series that retain lubricant and lock out contamination. Five seal combinations are possible.



For data on the complete line of McGill needle roller bearings, send for Handbook No. H-62-C.

engineered electrical products

McGILL®

precision needle roller bearings

McGILL MANUFACTURING CO. INC., Bearing Div.
550 N. Lafayette St., Valparaiso, Indiana

Write No.209 on Information Card—Last Page

Products

(*Continued from page 104*)

supply with variable manual control, hot knife unit includes 12 ft length of rubber cable. Knife blade is made of nickel-chromium ribbon stock 4 in. long, 1 in. wide, 1 16 in. thick, fastened to wooden handle. Blade is dull, depending on heat to do cutting. Standard blade temperature is 950 F, but temperature can be increased by filing to less width or thickness, thus increasing resistance. Filing technique makes it possible to concentrate heat at any point on blade. **Sta-Warm Electric Co., North Chestnut St., Ravenna, Ohio.**

Write No. 22 on Information Card—Last Card

Welding and Cutting Kits Are Budget Priced



Two low-cost oxy-acetylene welding and cutting outfits include apparatus which is unconditionally guaranteed for one year against defects in materials and workmanship. First unit includes three welding heads for welding metal up to $\frac{3}{8}$ in. thick and a cutting nozzle for slicing 2 in. steel. Second unit includes three welding heads for welding up to $\frac{3}{8}$ in. (capacity, up to 1 in.) and rugged cutting attachment with a nozzle for cutting up to 4 in. (capacity, up to 8 in.). Both outfits contain 12½ ft. of oxygen and acetylene hose, friction lighter, goggles and complete operating instructions. **Linde Co., Div. of Union Carbide Corp., 270 Park Ave., New York 17, N.Y.**

Write No. 23 on Information Card—Last Page

HUBBELL

SECURE YOUR
PRODUCT QUALITY
with

HUBBELL

STANDARD
COLD HEADED—ROLLED THREAD
FASTENERS



KEY TO BETTER PRODUCTS AT LOWER ASSEMBLY COST.

Stocked to assure rapid delivery of the largest orders. Quality control assures clean threads, well-formed heads, deep, clean slots, uniform size.

Sizes from #2 to ⅜". Lengths from ⅛" to 3". Available in all metals, finishes and head shapes—slotted, Phillips, slotted Sems, and Phillips Sems.

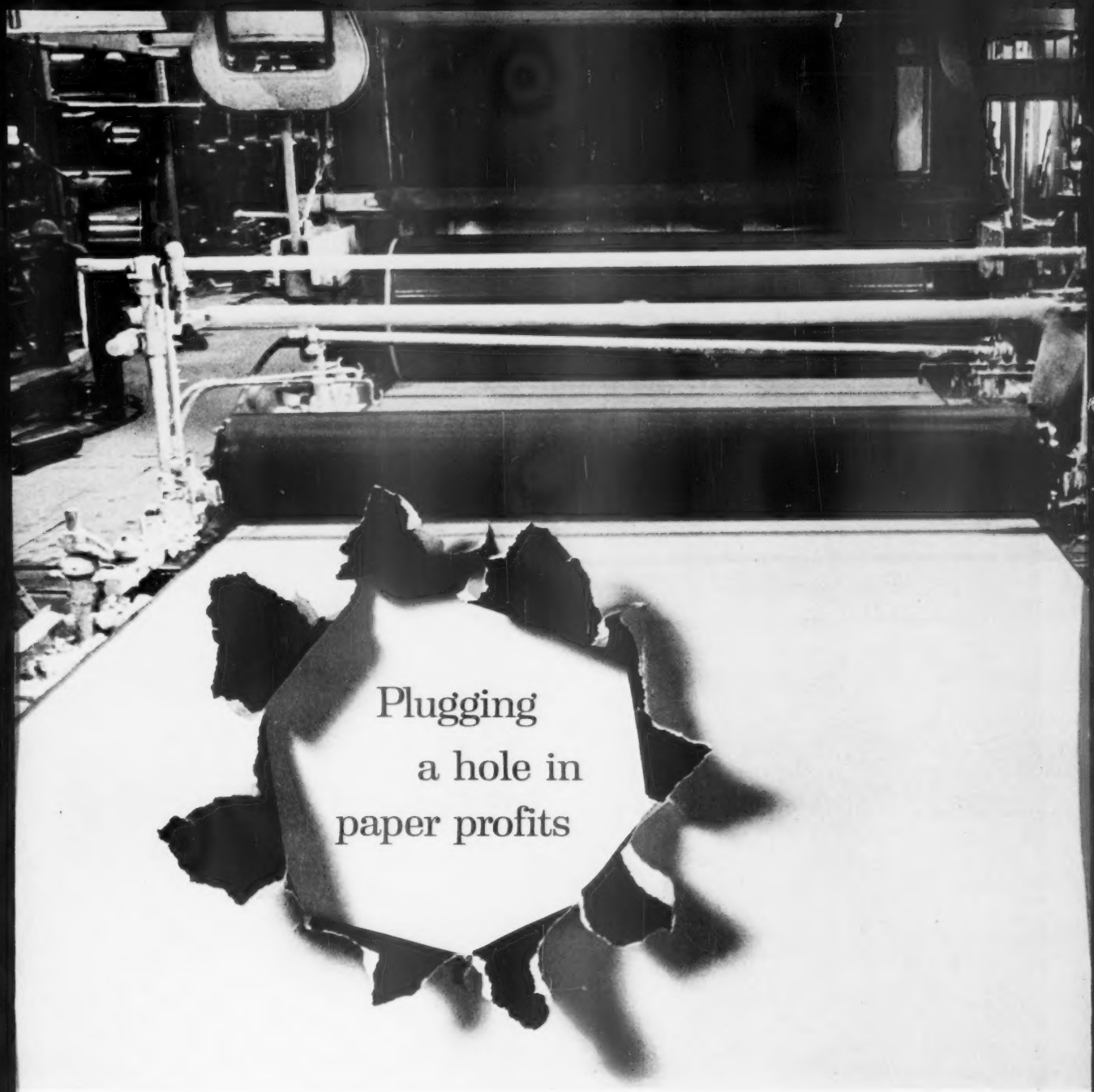
Write or call—

HARVEY
HUBBELL
INCORPORATED
MACHINE SCREW DEPARTMENT
BRIDGEPORT 2, CONNECTICUT

Write No.210 on Information Card—Last Page

RATTLE THIS NEW CHAMPION® BOND

This is 20 lb. Champion Bond



Dow improves processes to create better products

For every major break-through that hits the headlines, there are scores of less publicized advances which lead just as surely to making better products at better prices. For example:

This page you're reading. It started as grey wood pulp. To make it white, bright, legible, paper makers bleached the pulp with the same chemicals that transform brunettes to platinum. Paper mills' problem: how to hold brightness and cut cost? Dow's solution: a new chemical, Versenex® 80 chelating agent, which slowed down decomposition of the peroxide bleaching solution. Result: savings up to $3.50 per ton on bleaching . . . *whiter* paper at lower cost.

Settling for $1 million. Not long ago anyone could dig uranium out of the ground, but it took a king's ransom to separate *pounds* of uranium from *tons* of rock. The process required vast settling tanks, days of time. Then Dow's experience in flocculating, or settling agents, caused a revolution in uranium processing. Adding as little as one pound of a new Dow chemical, Separan® flocculant, speeded recovery up to 400%. In one mill costs were cut more than $1 million a year—at a chemical cost of only $15 a day!

If you'd like information on the latest process developments in chelation or flocculation, write us in Midland. Or if you have a chemical problem in any area, let us help you solve it.

THE DOW CHEMICAL COMPANY DOW Midland, Michigan

For More Facts Write No. 214 on Information Card—Last Page

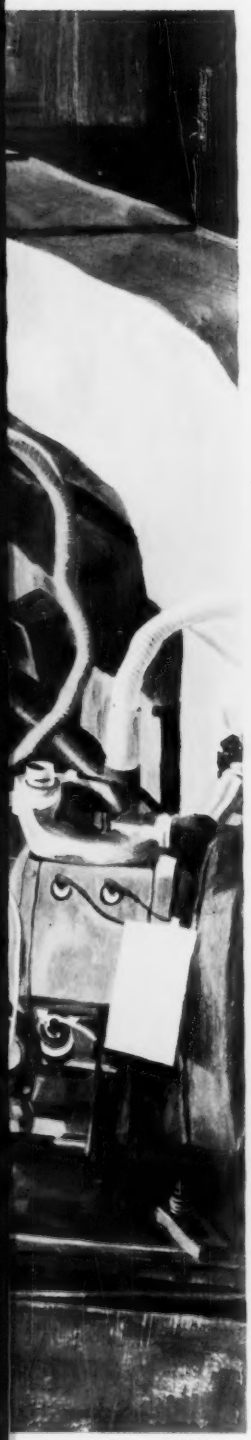
Wisconsin Motor combats rising



At Wisconsin Motor, 250 new engines are tested in this run-in room simultaneously. A special Mobil run-in oil used during testing leaves a protective coating that guards against rust during shipment and storage and provides initial lubrication when engines are started up in the field. The special non-gumming Mobil gasoline used in testing leaves no residue . . . eliminates the need for draining carburetor and gas bowl.

Mobil

costs with help of Mobil Program!



World's largest manufacturer of heavy-duty, air-cooled gasoline engines

reduces maintenance expense by $25,952 per year!

Wisconsin Motor Corporation, Milwaukee, Wisconsin, is the world's largest manufacturer of heavy-duty, air-cooled gasoline engines. To help combat today's rising operating costs while maintaining its reputation for high quality products, Wisconsin Motor looks to a continuing Mobil Program of Correct Lubrication.

Through installation of preventive maintenance and lubrication schedules plus recommendations for improved handling and application of lubricants, the Mobil Program brought about a reduction in maintenance cost of $25,952 in 1960.

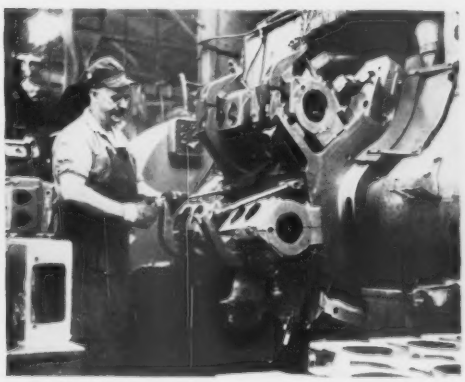
Your plant, too, could benefit from such a continuous cost-reducing program. For full information about the Mobil Program, contact your Mobil Representative, or write, Mobil Oil Company, 150 East 42nd Street, New York 17, N. Y.



Mobil charted all machinery in the Wisconsin Motor Plant and set up a program of scheduled lubrication and preventive maintenance. As a result, two maintenance men were freed to handle other duties with savings of $7,663 annually. A Mobil suggestion on handling and disposal of waste oil and solvents meant additional savings of $1,146.



Mobil Engineers analyzed storage and distribution practices for cutting oil used in screw machines . . . recommended that oil be purchased in bulk and piped directly to machines. Considerable savings were realized through quantity delivery discounts and reduced oil handling costs. Savings in 1960 totaled $7,855.



Careful adherence to specially developed Mobil lubrication and PM procedures reduced maintenance on rotary mills used in machining and finishing crankcase castings where an oil reservoir contamination problem was encountered. Savings: $2,507 yearly.



Mobil recommended proper way oils and spindle lubricants . . . established correct application schedules, reducing scoring problems and maintenance costs on grinders and broaches. Annual savings to Wisconsin Motor: $6,781.

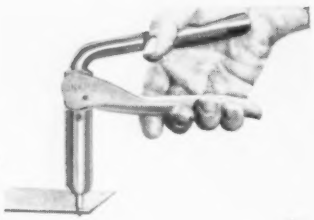
Correct Lubrication

SNAPO-a complete line of quality BLIND RIVETS

SNAPO RIVET GUN

▶ SETS ALL SIZES

▶ no changes in jaw



ONE TOOL DOES IT! Order "SNAPO" rivets in sizes of $\frac{1}{8}$", $\frac{5}{32}$", $\frac{3}{16}$" . . . in aluminum, steel, copper or monel, countersunk or flathead . . . One low cost tool, "SNAPO" Rivet Gun, sets them all, with quick turn of nozzle to adjust for proper size rivet. Handle up to $\frac{1}{2}$" work thicknesses—extra large heads available. **SAVE TIME, MONEY** with "SNAPO" rivets. Insert and crimp from same side; eliminate welding, screws, bolts. Versatile "SNAPO" Automatic Deluxe tool, only $22.95. Low price rivets.

Write now for details, prices . . .

RICHLINE CO. INC. 1531 E. Franklin Ave., Minneapolis 4, Minn.

For More Facts Write No. 212 on Information Card—Last Page

Polyethylene

Squirt-Spout Under Cap



The cap automatically installs the Squirt Spout--using your present method.

For Charcoal Lighter Fluid, Auto Polish, Insecticide, or any other screw neck application calling for dispensing in a stream. 1" diameter screw cap only.

Also, reversible spout in cap--1" and 2" lengths. 1" diameter screw cap only.

FREUND CAN COMPANY
159 W. 84th Street
Chicago 20, Illinois

Date_____

Please send me samples and quantity prices of--☐ Squirt Spout Under Cap; ☐ Reversible Spout in Cap.

YOUR NAME_____

FIRM NAME_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

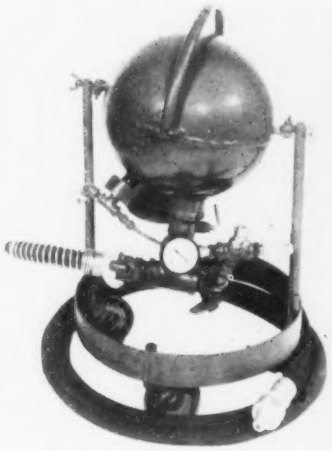
Freund Can Company

ABerdeen 4-4230
159 W. 84th Street
Chicago 20, Illinois

For More Facts Write No. 213 on Information Card—Last Page

Products

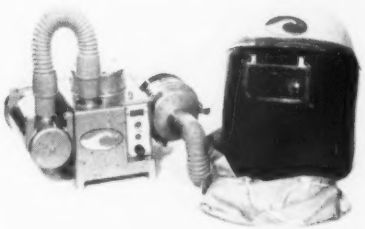
One-Man Blaster Does Spot Repairs



A portable abrasive blaster which can be operated by one man alone is intended for spot repairs to coated surfaces and for small jobs anywhere, even in the most inaccessible places. It can be pulled on its own wheels or carried by hand, and it features low air and abrasive consumption. Special metering valve permits use of ultra-fine abrasive for etching or woodwork, yet is adjustable for standard abrasives. Inexpensive automatic controls are also available. **Anderson Mfg. Co., 6826 Lynford St., Philadelphia 49, Pa.**

Write No. 39 on Information Card—Last Page

System Gives Complete Protection for Welders



A health protection system for welders provides complete above-the-shoulders protection, including head, eyes, ears, nose, throat, face, neck and entire respiratory

(*Please turn to page* 116)



PROBLEM: How to specify moisture protection for your product without being an expert on packaging papers or coatings

SOLUTION: With International Paper's new "Levels of Protection" you buy precisely the packaging protection you need and no more

Now, with its "Levels of Protection," International Paper cuts through the confusion resulting from the many different types of moisture-barrier papers available today.

The "Levels of Protection" system provides the first effective yardstick for comparing one moisture-barrier paper with another. This means you don't have to be an expert on papers, coatings and weights to get the best packaging for your money.

This new rating system evaluates all our moisture-barrier papers—regardless of type or weight of coating—against a scientifically graduated scale of *levels of protection*. Knowing what product you package, we can quickly recommend the most effective level of protection for that product.

But this rating system has another dimension. Since we can supply a number of different types of moisture-barriers for any given level of protection, we can offer you the *one* barrier that *most economically* furnishes the level of protection you require for your product.

This new system is another example of the complete packaging service offered you by International Paper. Service which includes a complete range of paper packaging and paper packaging materials, skilled packaging engineers, printing and design service.

For full details, call any of our sales offices or write us direct.

INTERNATIONAL PAPER

NEW YORK 17, N. Y.

Manufacturers of papers for magazines, books, newspapers • papers for home and office use • converting papers • papers and paperboards for packaging • labels • folding cartons • milk containers • shipping containers • multiwall bags • grocery and specialty bags and sacks • pulps for industry • lumber, plywood and other building materials

DEAL WITH MEN WHO UNDERSTAND YOUR PROBLEM



Choice of metals and finishes. Sizes to 2.75 in. OD and 3.75 in. deep.

Of course you want good service when you buy small precision metal stampings and deep-drawn parts. Well, at J&H you deal with men experienced in both the engineering and the manufacturing of these parts. They understand your problem . . . know how to weed out needless cost, while insuring full precision. And they can keep on top of your order to insure fastest possible delivery. Good service is part of the extra benefit you get when you buy from J&H. Send drawing today for a free cost estimate and Bulletin 81.

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MANUFACTURING CORPORATION
31 East 2nd Street • Mineola, N.Y. • Pioneer 2-3333
An affiliate of Superior Tube Co.

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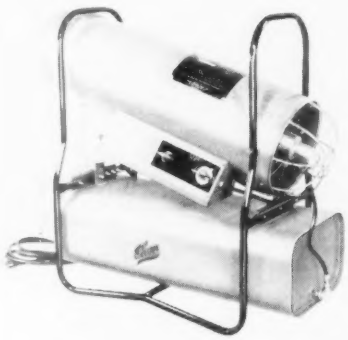
Products

(*Continued from page* 114)

system. Air is supplied to wearer through use of centrifugal filter, blower (for filtered air) or special hose adapter connecting system to in-plant compressed air. High-efficiency filter removes toxic fumes. Lightweight helmet of double-shell fiberglass construction meets or exceeds federal specifications for Class A head protective device. Removable, fitted welder's shield can be raised and lowered easily. Spark-resistant shroud offers further protection for lower face and neck. Quick disconnect feature permits wearer to disconnect easily and completely by sudden tug in any direction. **Jamieson Laboratories, 7900 Haskell Ave., Van Nuys, Calif.**

Write No. 24 on Information Card—Last Page

Space Heater Offers Efficiency, Economy

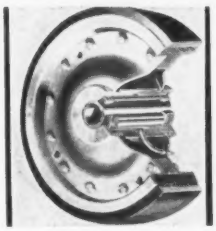


A portable, oil-fired space heater is a highly economical unit for temporary heating and drying in frigid working areas and for all industrial emergency applications. Low pressure rotary type burner provides .90 gallon fuel consumption per hour, permitting thirteen hours continuous low-fire operation. Burner atomizes fuel centrifugally so there is no odor, no smoke, no build-up of fumes. Unit weighs only 42 lbs. less fuel, is 30¾ in. long, 13 in. wide and 26½ in. high. Output can be varied from 70,000 btu to 125,000 btu per hour, and unit can be operated anywhere standard electric voltage exists. **Thor Power Tool Co., Aurora, Ill.**

Write No. 25 on Information Card—Last Page

YOU SAVE BY SPECIFYING DARNELL

Casters & Wheels



SILENT service.

ABSENCE of Irritation caused by casters which do not function properly.

FLOOR protection.

ELIMINATION of repairs to equipment.

Reserved for you...

FREE



DARNELL CORPORATION, LTD.
DOWNEY (Los Angeles County) CALIF.
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36 NORTH CLINTON ST., CHICAGO 6, ILL.
1000 PEACHTREE N. E., ATLANTA, GA.

Write No.217 on Information Card—Last Page



CALL YOUR MIDWEST DISTRIBUTOR

Midwest stocks chrome-moly fittings in all standard types, sizes and wall thicknesses—cutting costly downtime to a minimum.

And, if the fitting you need is *not* standard, it can be produced quickly from the full stocks of raw materials maintained by Midwest.

When you need replacement fittings, get back on stream fast! Call your Midwest distributor for quick, dependable delivery and service.

MIDWEST PIPING CO. INC.
1450 S. SECOND ST., ST. LOUIS 4, MO.

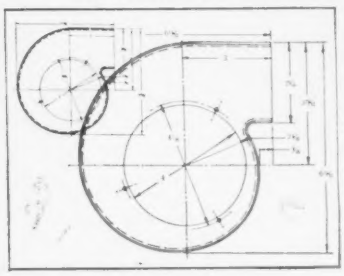
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For More Facts Write No. 219 on Information Card—Last Page

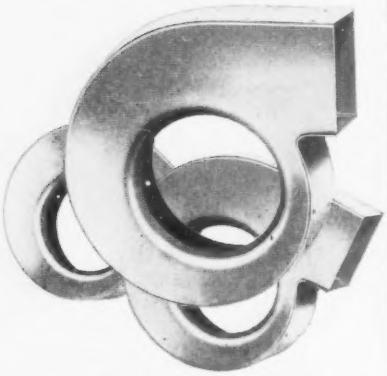
YOU CAN HAVE

PRE-ENGINEERED

BLOWER HOUSING ASSEMBLIES



BUILT-IN DE-STA-CO QUALITY



QUICK DELIVERY

Long experience and tooling flexibility provide quick delivery of pre-engineered Blower Housing assemblies. Broad range of sizes and styles—in any width—available from stock dies in a matter of days . . . and no tooling costs! For special installations ask our engineers how adaptations can be made at low unit cost.

WRITE FOR FULL DETAILS AND SPECIAL BROCHURE

DETROIT STAMPING COMPANY

340 MIDLAND AVENUE · DETROIT 3, MICHIGAN

TOGGLE CLAMPS · STAMPINGS

DE-STA-CO

SHIMS AND SPACERS · BLOWER HOUSINGS

Write No. 220 on Information Card—Last Page

Products

Unit Cuts Variety of Plate Edge Profiles



A plate edge preparation unit using standard machine cutting torches with acetylene, natural gas or propane can accurately cut standard straight edges as well as simple bevels, double bevels or bevels with a nose. Cutting nozzles float freely as plate riding wheel moves over work surface, thus assuring smooth, uniform cuts regardless of surface contours or waves. Ease of operation and of maintenance is keynote of unit. Design provides ready access to all controls and instantaneous control of gas flows to all torches. Attachment is 45 in. high, including torches and nozzles. It has a 20 in. wide base and weighs approximately 111 lbs. **Line Co., Div. of Union Carbide Corp., 270 Park Ave., New York 17, N. Y.**

Write No. 26 on Information Card—Last Page

Power Shear Saves Time, Cuts Costs

A low-cost power shear is designed to save time on operations that involve cutting sheet metal, coils, plastics, fiberglas, Formica, aluminum, brass or copper. Shear is fast-operating and leaves clean, neat edge. Weighing only 4-1/2 lbs, it is easily portable and plugs into any 110 volt outlet. Sturdy construction and simplicity design are featured for long life and trouble-free performance. Air-driven models are also available. **W.P.B. Industrial Products, Inc., 8244 Christiana Ave., Skokie, Ill.**

Write No. 40 on Information Card—Last Page

All These Services from your LUNKENHEIMER DISTRIBUTOR

- FASTER DELIVERY
- EMERGENCY SERVICE
- TRAINED PERSONNEL
- SIMPLIFIED PURCHASING
- NEARBY WAREHOUSING
- DEPENDABLE VALVE APPLICATION SERVICE

Let us show you the brand new BALL VALVES and BUTTERFLY VALVES

FOR THE BEST
• QUALITY
FOR THE BEST
• SERVICE

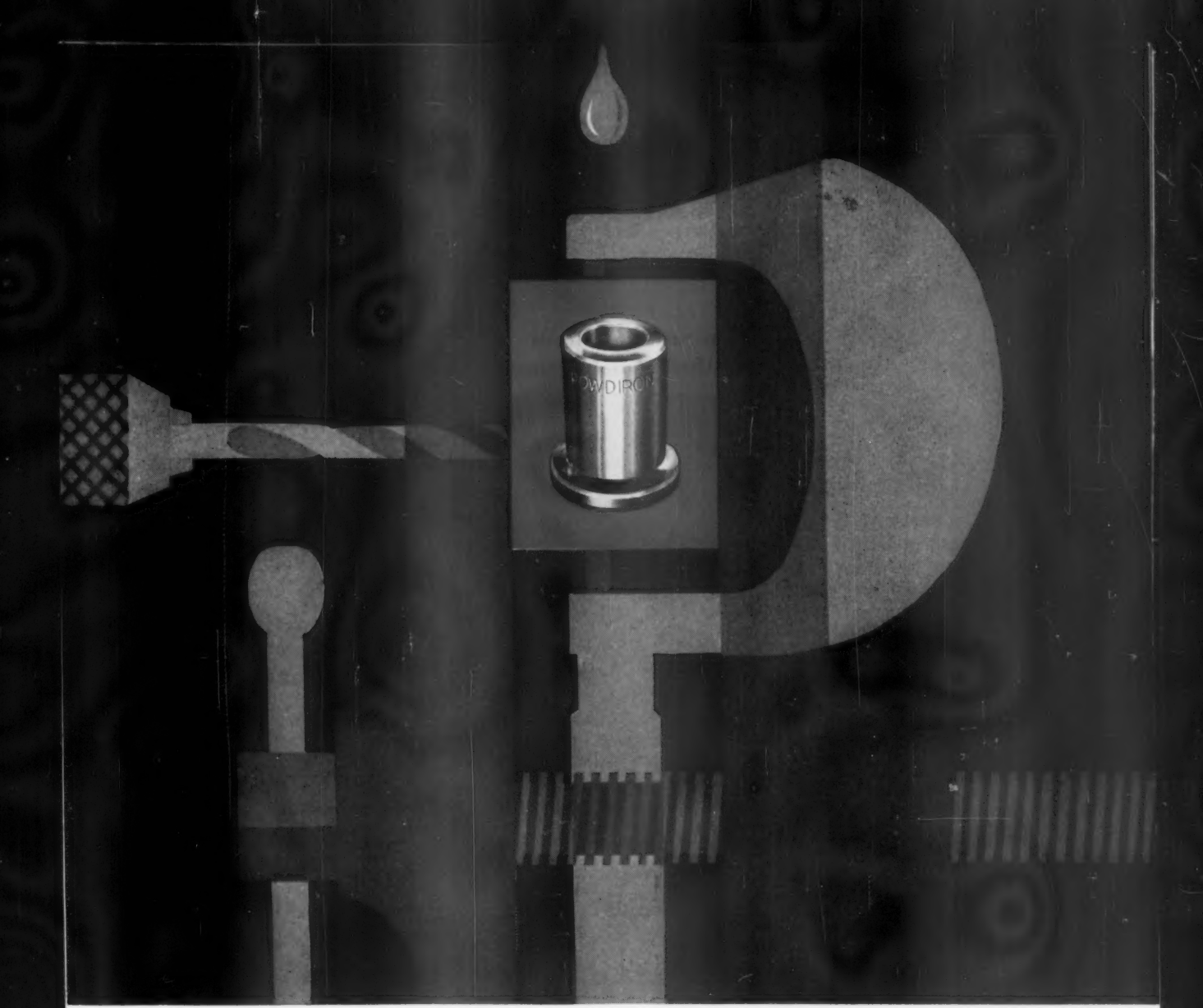
. . . call your local LUNKENHEIMER DISTRIBUTOR

LUNKENHEIMER QUALITY

INDUSTRIAL DISTRIBUTORS · SERVING INDUSTRY ECONOMICALLY · THE RIGHT HAND OF PRODUCTION

L-1061-9

Write No. 221 on Information Card—Last Page



Which of Powdiron's many talents fit your job?

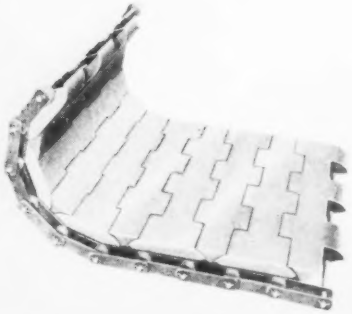
High strength . . . closest tolerances . . . high oil content . . . excellent machinability. You'll find all these, plus long-wearing durability, economy and more, in the various grades of Powdiron—Bound Brook's bearing material of many talents. Don't choose *between* quality and economy—get both in Bound Brook Powdiron . . . your best buy in iron bearings.

If your job calls for:	Specify:
• High compressive strength . . . good hardness	• Powdiron 61-PH
• High magnetic permeability	• Powdiron S
• Exceptional wear & hardness	• Powdiron T
• Exceptional tensile strength	• Powdiron PCU
• Maximum economy	• Powdiron 591
• Excellent machinability	• Powdiron FM

BOUND BROOK BEARING
CORPORATION OF AMERICA
A BIRFIELD COMPANY
Pioneer in Powder Metallurgy Bearings and Parts • Plants at Bound Brook, N.J. and Sturgis, Mich.
For More Facts Write No. 222 on Information Card—Last Page

Products

Flat, Hinged-Steel Belts Carry Heavy Loads



A line of patented flat-top, hinged-steel conveyor belting and flat-top belt conveyors can be installed above the floor or as flush with floor "moving sidewalk" to handle bulky, hot or heavy material and assemblies. End-curved, interlocking and overlapping steel belt links provide an almost smooth-top carrying surface. Conveyor can be designed one-way or two-way. Belting can negotiate convex or concave curves with safety. Design guarantees closely fitted joints at all times. Conveyors can be supplied to virtually any practical width from 12 to 60 in. **May-Fran Mfg. Co., 1710 Clarkstone Rd., Cleveland 12, Ohio.**

Write No. 27 on Information Card—Last Page

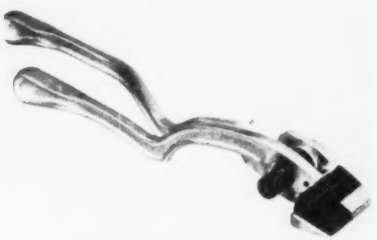
Respirator Features Comfort and Economy



A redesigned respirator which features an improved facepiece peripheral seal promises economy and a higher degree of worker acceptance. Advanced seal includes an inturned lip and deep chin cushion supported by four-point floating suspension system. This provides for a greater range of facial shapes and sizes, minimizing need for full facepiece in areas of "nuisance" concentrations of contaminants or toxic dusts. Improved design and light weight of half mask insures greater comfort. **Mine Safety Appliances Co., 211 N. Braddock Ave., Pittsburgh 8, Pa.**

Write No. 28 on Information Card—Last Page

Lightweight Strap Tool Gives 45% More Tension

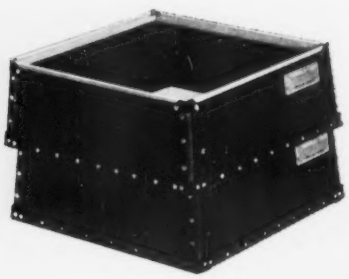


A stretcher which weighs only 5½ lbs speeds up strapping heavy duty round or irregular shaped units, skids and pallets, truck and

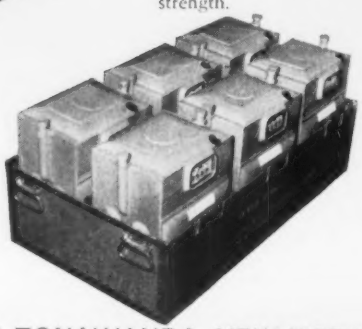


Spaulding Boxes with Special Partitions are used for interplant handling of thermostats at the Hotpoint Div. of General Electric. Partitions protect delicate adjustments, keep calibrations accurate and help avoid field complaints.

THERE'S A SPAULDING BOX



Spaulding Reverse Taper Tray is often used for handling small, delicate parts. A variety of partitions can be added to separate contents. These trays are dust-free, allow steady stacking and have great strength.



Spaulding Heavy Duty Boxes carry gas meters at Consolidated-Edison. Box is strong enough to easily support stacking. Twin carrying handles at each end facilitate handling by two men.

SPAULDING FIBRE COMPANY, INC. • 354 WHEELER STREET, TONAWANDA, NEW YORK

carloads. Unit makes possible faster tensioning of ¾ in. and 1¼ in. x .035 in. strapping since it has tensioning arc of approximately 230 degrees. Feature also makes it possible to apply up to 45% more tension without increase in operator effort, as well as making work easier in close quarters or where seal must be placed on top of unit. Small, round surfaces or irregular objects can be strapped easily since no base is needed on which to rest tool. **A. J. Gerrard & Co., 400 E. Touhy Ave., Des Plaines, Ill.**

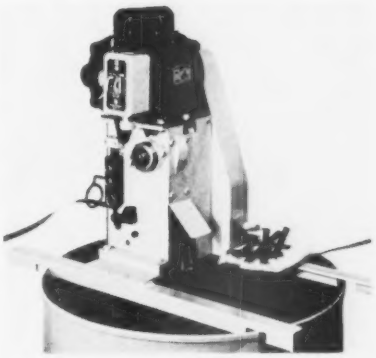
Write No. 29 on Information Card—Last Page

Shelving Section Assembles in Minutes

The design in a line of fast-assembly shelving is so efficient that an entire section can be assembled in less than five minutes without nuts, bolts, or tools. Shelving for shop, office or toolroom has only three basic parts: uprights, shelves and shelf support. No sway braces are used. Shelf supports lock into slots punched on inner faces of uprights, providing front and back support for entire shelf. Other optional parts provide an endless variety of arrangements for open, closed and bin-type shelving. **Aurora Steel Products Co., 153 Third St., Aurora, Ill.**

Write No. 30 on Information Card—Last Page

Chopper Solves Scrap Strap Problem



A strap chopper eliminates the handling, storage and safety problems of balled or folded metal strapping and has increased scrap resale value as much as 300% for some firms. Electrically driven chopper shears flat and oval strapping into approximately three in. lengths at rate of 70 ft. per min. It can handle all grades of steel up to ¾ in. x .025 in. flat strapping including the seal, and up to 12 gauge oval wire. Unit fits solidly on 55 gal. drum or can be mounted on bin or salvage truck. **A. J. Gerrard & Co., 400 E. Touhy Ave., Des Plaines, Ill.**

Write No. 31 on Information Card—Last Page

Offer Unique Concept in Lathe Controls

Moderately priced, medium duty lathes can now be purchased with standard manual shift and later inexpensively changed in the field to hydraulic shift. Conversion "package" which fits inside standard headstock makes this possible. 13 in., 15 in., 17 in. and 18 in. lathes can also be purchased with hydraulic shift as original equipment. Units are built to exacting tolerances. Tail-stock features positive spindle clamping. Quick-change box is totally enclosed and automatically lubricated. **R. K. LeBlond, Machine Tool Co., Cincinnati 8, Ohio.**

Write No. 32 on Information Card—Last Page

FOR EVERY KIND OF HANDLING PROBLEM

. . . INCLUDING YOURS!

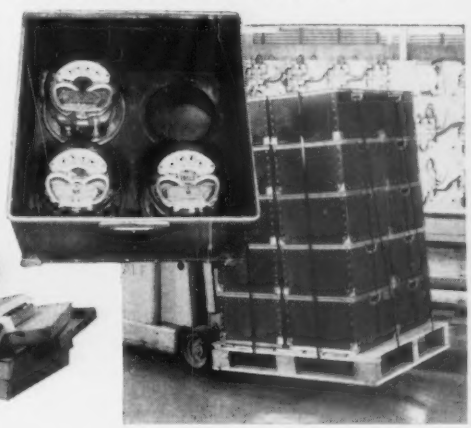
Here are a few examples of Spaulding Boxes which were designed for the particular needs of a customer. Some are modifications of standard box types — others are entirely new designs. All demonstrate the fact that Spaulding's engineering can solve any Materials Handling problem. Look them over.



Spaulding's Super Market Carry-Out Box holds bags of groceries from check-out counter to customer's car. Used on conveyor system or carried by hand, it eliminates the need for taking expensive wire basket carts out of store.



Spaulding's Dry Goods Storage Box with telescoping top replaces fragile chipboard boxes for greater durability and neater housekeeping at Stern & Stern Textiles, Inc.

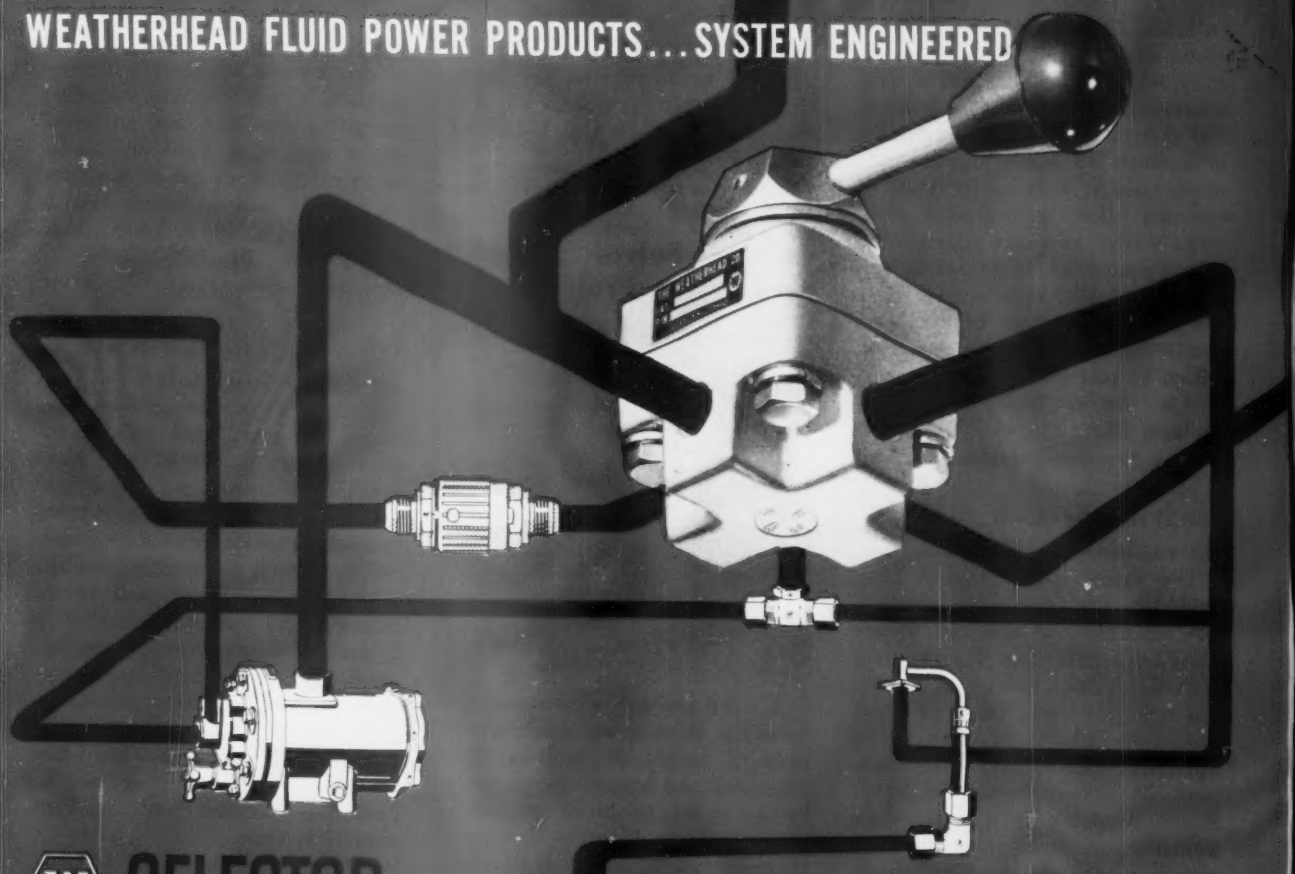


Special Spaulding Meter Boxes, designed for Jersey Central Power and Light, have changeable dunnage trays to accommodate various sizes and types of meters. They can be stacked and banded, providing ideal protection for these precision instruments.

SPAULDING MATERIALS HANDLING DIVISION • DOVER, NEW HAMPSHIRE

For More Facts Write No. 223 on Information Card—Last Page

WEATHERHEAD FLUID POWER PRODUCTS... SYSTEM ENGINEERED



SELECTOR CONTROL VALVES STANDARDIZED FOR ECONOMY... ENGINEERED FOR VERSATILITY

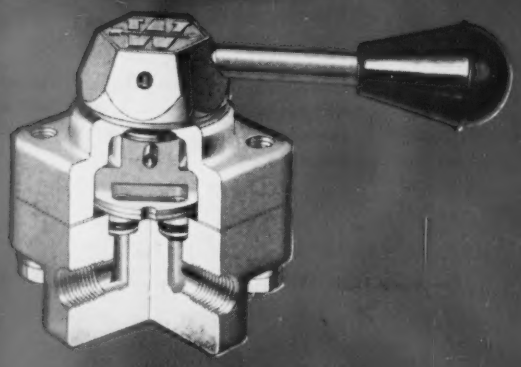
Unmatched economy is achieved by standardizing on a 4-way design, adaptable to 2 or 3-way selection. Greater versatility is provided because this advanced control monitors hydraulic or pneumatic flow pressures ranging from zero to 3000 psi.

These outstanding capabilities eliminate need for additional spare parts on intermediate pressure models . . . assure availability from distributor stock . . . simplify varied application needs over wide pressure range.

Weatherhead selector control valves offer: safe, smooth operation ■ positive sealing ■ spring centered, or detent position handles ■ horizontal or vertical ports ■ panel mounting or flexibility within the system.

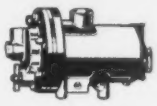
Contact your nearby Weatherhead distributor or write direct for latest brochure.

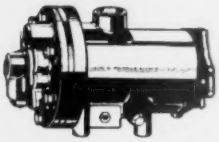
THE WEATHERHEAD COMPANY
CLEVELAND 8, OHIO



WEATHERHEAD
HYDRAULIC POWER
Components

VARIABLE DISPLACEMENT PUMPS

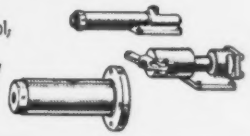




Meet J.I.C., S.A.E., and M.S. standards. Pressures to 3000 psi

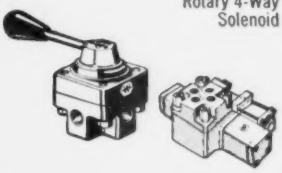
PUMP CONTROLS

Pressure Control, Automatic (Constant) Flow Control, Manual Displacement Control



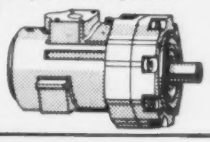
DIRECTIONAL CONTROLS

Rotary 4-Way Valves
Solenoid Valves



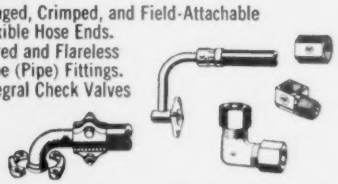
HYDRAULIC DRIVES

Fixed Displacement Hydraulic Motors; Reversible Variable Displacement Hydraulic Motors (Integrated Torque and Speed Control)



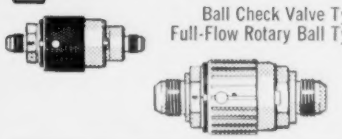
HIGH PRESSURE HOSE AND FITTINGS

Swaged, Crimped, and Field-Attachable Flexible Hose Ends. Flared and Flareless Tube (Pipe) Fittings. Integral Check Valves



SELF-SEALING COUPLINGS

Ball Check Valve Type
Full-Flow Rotary Ball Type



THE WEATHERHEAD CO.
300 EAST 131 ST. • CLEVELAND 8, OHIO
Distributors in all major markets

Write No. 225 on Information Card—Last Page

Products

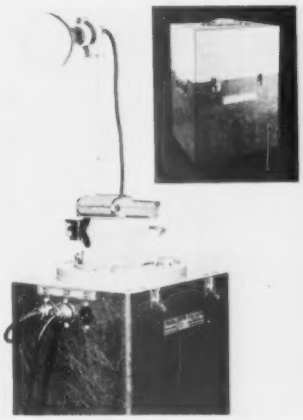
50% Cost Cut in Microwave Plumbing



A complete line of microwave wave-guide and accessories is available at prices approximately 50% lower than comparable military-finished units. Equipment is designed for laboratories, commercial-industrial installations, and general applications. Line includes all components necessary for system design. They are constructed of standard RG-52/U brass wave guide and employ UG/39 flanges. Military flanges and chokes are available at slightly higher prices. All units are nickel-plated. **Microwave Components, Inc., Doylestown, Pa.**

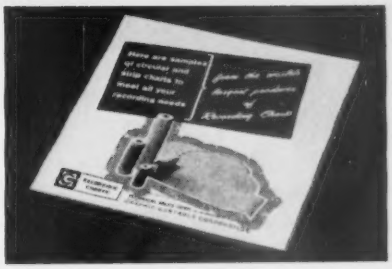
Write No. 33 on Information Card—Last Page

Identification Camera Makes "Instant" Badges



A camera intended for identification photography uses ten-second Polaroid film to produce a

(*Please turn to page* 126)



SEND FOR THIS NEW
FREE FOLDER OF SAMPLE
GC® RECORDING CHARTS

Send for this free folder of GC circular, strip, rectangular and "special" recording chart samples. It'll help you compare for accuracy, check for quality. And remember these seven reasons why GC can supply all your recording chart needs best:

1. **ONE SOURCE OF SUPPLY** simplifies ordering by centralizing all of it with one dependable supplier.
2. **SIMPLIFIED INVENTORY,** through periodic, automatic shipment from GC, keeps your stock room free.
3. **CONSISTENT HIGH QUALITY,** guaranteed by GC's unfaltering quality control, means perfect job results every time.
4. **LOWER COST,** through the modern production methods of the world's largest chart manufacturer and supplier, means big savings to you.
5. **PERSONALIZED SERVICE,** through GC representatives who are ready to furnish you with sample charts at no obligation, takes the guesswork out of buying charts.
6. **SPECIAL CHARTS,** special grid designs or special papers to handle any special requirements you may have...are routine to GC.
7. **BLUE CHIP ACCEPTANCE** by the country's leading refiners, chemical plants, utilities, steel plants and others, means you're buying proven quality with GC.

Clip the coupon and send for your folder of GC chart samples now.

GC® RECORDING CHARTS

Use This Coupon

Technical Recording Chart Division
GRAPHIC CONTROLS CORP.
189 Van Rensselaer St., Dept. PM
Buffalo 10, New York

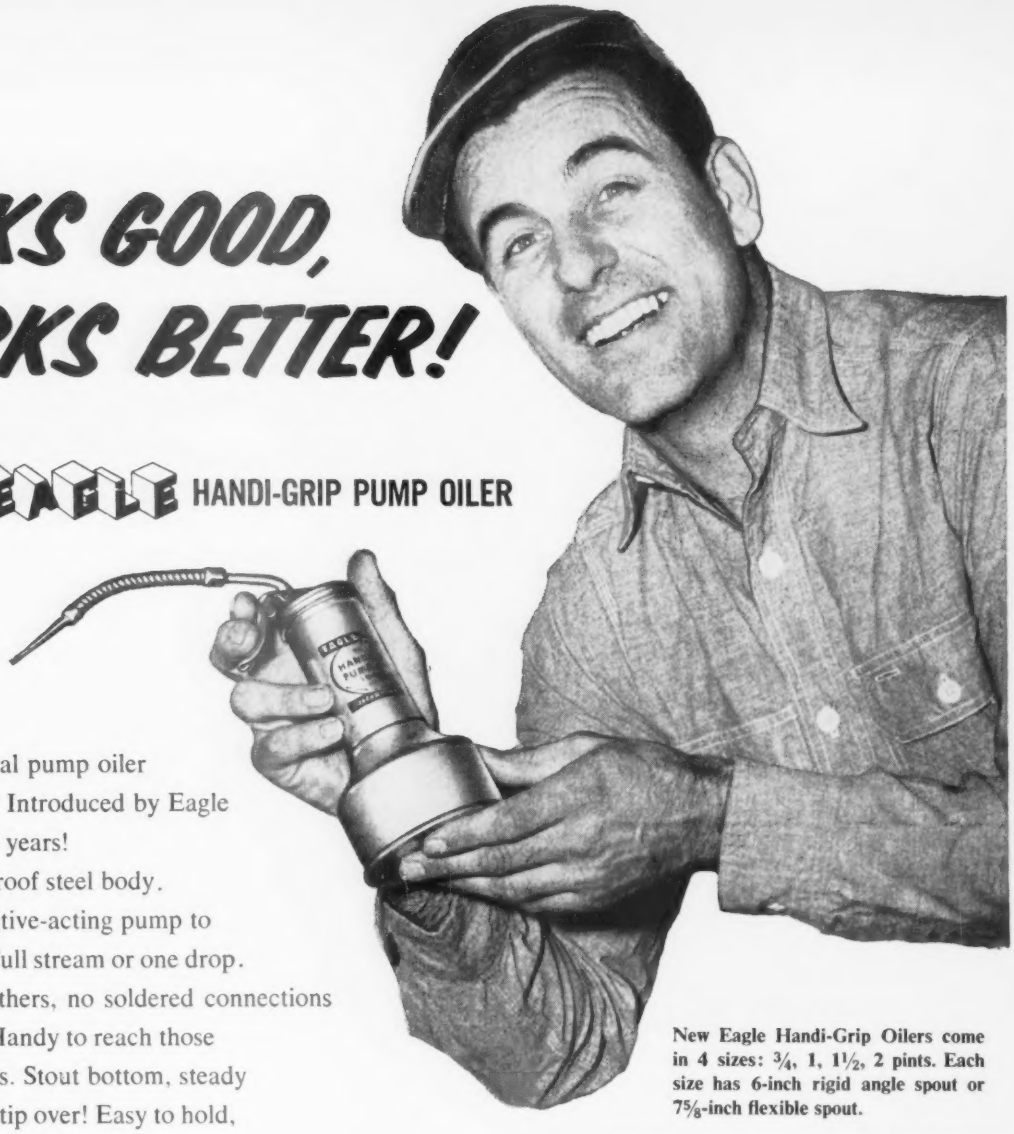
Please send me the Free GC Recording Chart sample folder with information to help me check chart quality.

Name_____
Firm_____
Address_____
City_____ State_____

Write No. 226 on Information Card—Last Page

LOOKS GOOD, WORKS BETTER!

THE NEW EAGLE HANDI-GRIP PUMP OILER

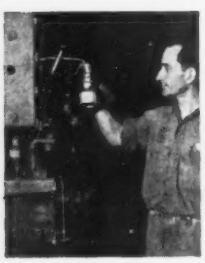


Here's the ideal pump oiler for every use! Introduced by Eagle Guaranteed 5 years! Strong, leakproof steel body. Powerful positive-acting pump to deliver oil in full stream or one drop. No pump leathers, no soldered connections to wear out. Handy to reach those difficult places. Stout bottom, steady stance, won't tip over! Easy to hold, easy to use, reasonably priced.

New Eagle Handi-Grip Oilers come in 4 sizes: ¾, 1, 1½, 2 pints. Each size has 6-inch rigid angle spout or 7⅝-inch flexible spout.

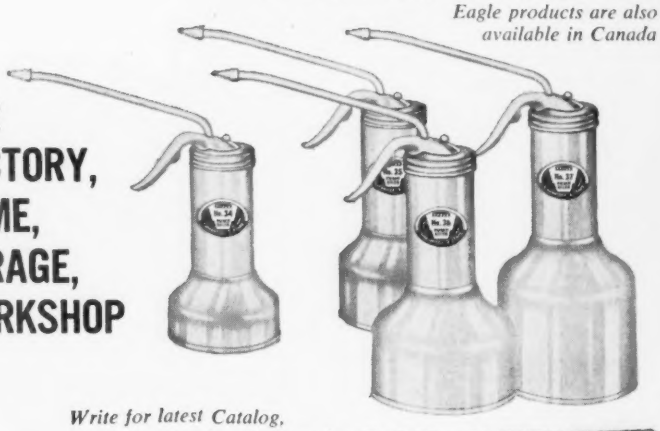
ORDER FROM YOUR SUPPLIER

Eagle products are also available in Canada





FOR FACTORY, HOME, GARAGE, WORKSHOP



Write for latest Catalog, showing the Complete Eagle Line. It's **FREE!**



EAGLE MANUFACTURING CO. WELLSBURG, W. VA.

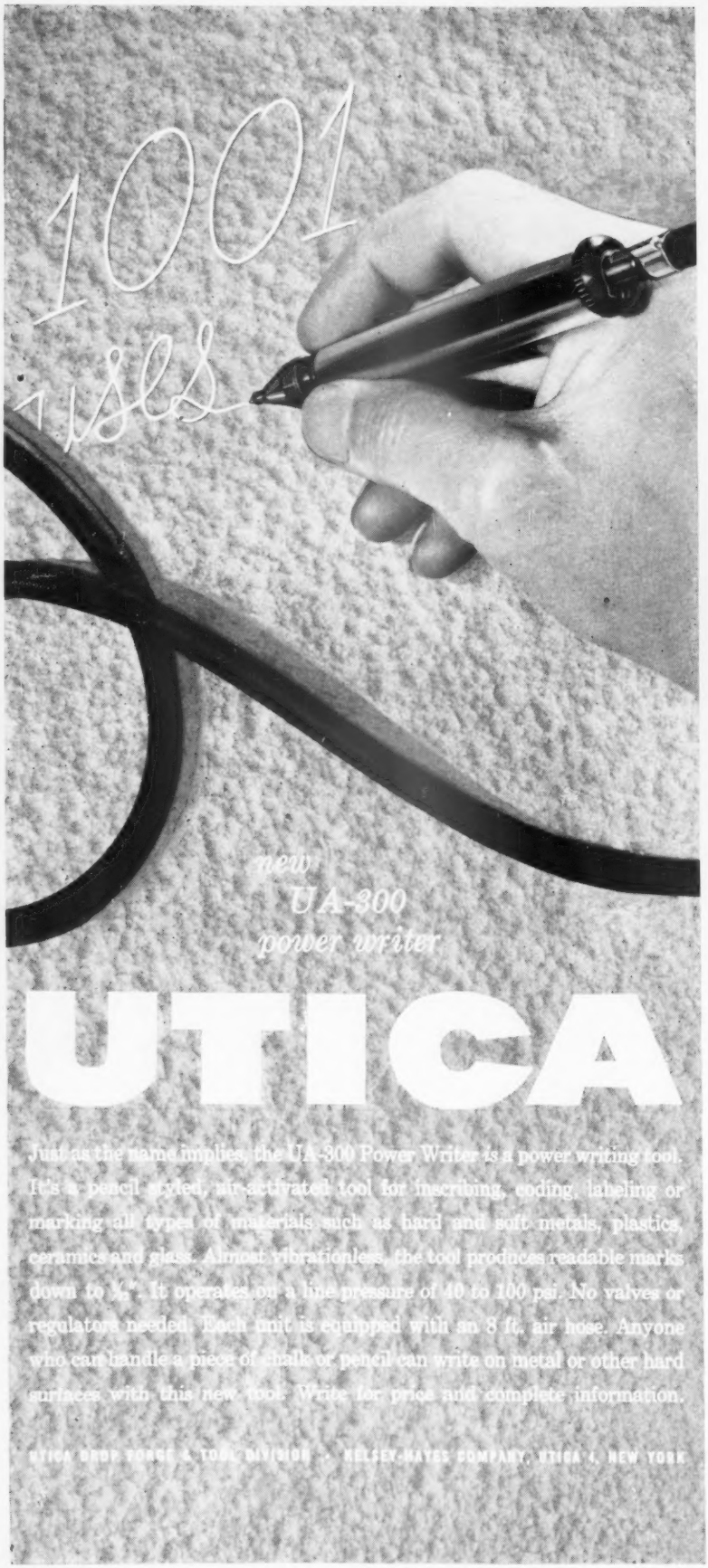
SERVING THE TRADE SINCE 1894

For More Facts Write No. 227 on Information Card—Last Page



From the kitchen, to the finest tables in the land! That's the progress of modern stainless flatware —thanks to new-day design and finish. • Superior Stainless Strip Steel is chosen widely for flatware applications because of its *superior uniformity and fabricating ease.* From our bright coils come stainless pieces practical for the hardest service, handsome enough for Sunday best!

SUPERIOR STEEL DIVISION
OF
COPPERWELD STEEL COMPANY
CARNEGIE, PENNSYLVANIA
For Export: Copperweld Steel International Company, New York



For More Facts Write No. 229 on Information Card—Last Page

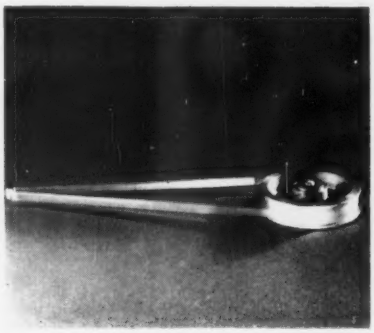
Products

(*Continued from page 123*)

security pass or identification badge immediately. Camera is completely self-contained unit in compact carrying case. It measures only 21½ x 12 x 15 in. when stored in case and weighs only 25¼ lbs. Subject illumination is standard 500 watt R 40 lamp. Camera will record any kind of writing, including pencil. **Natural Lighting Corp., 630 S. Flower St., Burbank, Calif.**

Write No. 34 on Information Card—Last Page

Precision Drive Belts Made to Order



Seamless "Mylar" Belts to specifications are now available on short delivery. Especially suited for flutter and slip free precision power transmission in fractional and sub-fractional range, belts come in lengths to 48 in., in widths to 1 in., and in thicknesses from .5 to 10 mils. Tolerances as low as .015 in. on length, .0001 in. on thickness, and .005 in. on width assure smooth, accurate transmission. Heat-treated for yield points to 18,000 psi, belts are strong, tough, durable and stable. **Kinelogic Corp., 1256 N. Fair Oaks, Pasadena, Calif.**

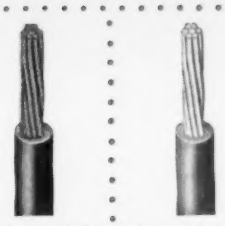
Write No. 35 on Information Card—Last Page

Offers Spring Steel in Widths to 48 in.

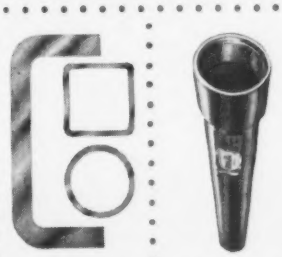
Spring steel in widths up to 48 in. is now available. Cold-rolled, hardened and tempered steel with a tensile strength of 170,000 psi and Rockwell hardness of 38 can be had in any desired length. It comes in a gray hardened finish only. **Sandvik Steel, Inc., 1702 Nevins Road, Fair Lawn, N. J.**

Write No. 36 on Information Card—Last Page





Rome Cable Division supplies
ALUMINUM WIRE AND CABLE
COPPER WIRE AND CABLE
ALUMINUM BUS CONDUCTOR
ALUMINUM CONDUIT



Do all your suppliers work *week ends* for you?

A lot of suppliers *talk* about delivery and service. Here's just one example of what we *do*.

When a P.A. reported to our Seattle representative that his firm* had an equipment failure, it was five o'clock on a Friday afternoon. 500 feet of 5-KV cable were needed—fast!

It was eight o'clock in the East, of course, but our Seattle rep called the home office anyway. He talked to the Sales Service Manager, who tracked down the Traffic Manager at his Friday-night bowling game. They both went to work, and by 11:00 that night the order was assembled from Rome's stock. It was shipped by plane and by 7:30 Monday morning was in Seattle and on the job.

Unusual? Maybe. But it's typical of what you can expect in the way of service when you meet your wire and cable requirements through Rome Cable Division of Alcoa.

**Name furnished on request*

For information about our broad line of products, write for Bulletin RCP-200, "Guide to Representative Wire, Cable and Conduit." Address inquiries to Rome Cable Division of Alcoa, Dept. 14-111 Rome, New York.

ALCOA
ROME CABLE
DIVISION

For More Facts Write No. 230 on Information Card—Last Page



PLAY IT SAFE...

SPECIFY DEPENDABLE DUPONT FAIRPRENE®

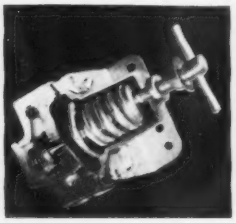
Ever call for gaskets, diaphragms, condenser seals, valves or similar parts? You can be sure of peak performance and maximum service if they're fabricated with Du Pont "Fairprene"*. "Fairprene" resists acids, gas solvents, temperature extremes and other hazards of operation.

Du Pont research and quality control assure you that parts made with this basic material are long-lasting . . . economical . . . save replacement costs . . . reduce down-time. So play it safe . . . specify Du Pont "Fairprene" and know you've made the right choice.

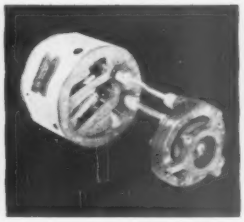
DU PONT
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

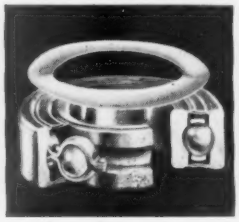
*"Fairprene" is Du Pont's reg. trademark for its coated fabrics, sheet stocks and cements.



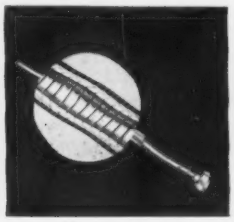
air-regulator diaphragm



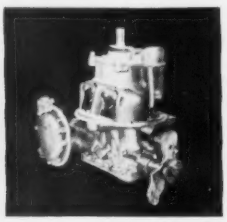
fuel-transfer control



bearing seal



molded jacket



carburetor diaphragm

For More Facts Write No. 231 on Information Card—Last Page

Whatever you make... there's a

WALDES TRUARC® RETAINING RING

designed to improve your product...lower assembly costs

function		for axial assembly					for taking up end-play					
							axial assembly				radial assembly	
nomenclature		basic		heavy duty	inverted		bowed		beveled		bowed e-ring	prong-lock®
												
series no.		5000 N5000	5100	5160	5008	5108	N5001	5101	5002 N5002	5102	5131	5139
application		Internal for Housings, Bores	External for Shafts	External for Shafts	Internal for Housings, Bores	External for Shafts	Internal for Housings, Bores	External for Shafts	Internal for Housings, Bores	External for Shafts	External for Shafts	External for Shafts
size range	in.	.250 – 10.0	.125 – 10.0	.394 – 2.0	.750 – 4.0	.500 – 4.0	.250 – 1.500	.188 – 1.500	1.0 – 10.0	1.0 – 10.0	.110 – 1.375	.092 – .438
	mm.	6.4 – 254.0	3.2 – 254.0	10.0 – 50.8	19.0 – 101.6	12.7 – 101.6	6.4 – 38.1	4.8 – 38.1	25.4 – 254.0	25.4 – 254.0	2.8 – 34.9	•

function		for radial assembly				self-locking types					
nomenclature		crescent®	e-ring	interlocking	reinforced e-ring	circular self-locking			grip-ring	triangular self-locking	triangular nut
											
series no.		5103	5133	5107	5144	5115	5105	5005	5555	5305	5300
application		External for Shafts	External for Shafts	External for Shafts	External for Shafts	External for Shafts	External for Shafts	Internal for Housings, Bores	External for Shafts	External for Shafts	With Threaded Screw
size range	in.	.125 – 2.0	.040 – 1.375	.469 – 3.375	.094 – .562	.094 – 1.0	.094 – 1.0	.312 – 2.0	.079 – .750	.062 – .438	•
	mm.	3.2 – 50.8	1.0 – 34.9	11.9 – 85.7	2.4 – 14.3	•	•	•	2.0 – 19.0	•	•

Truarc retaining rings are precision-engineered fasteners which simplify design, speed production and reduce material, machining and assembly costs. They may be used to retain components on shafts and in bores and housings .040" to 10" dia. – and rings as large as 40" dia. have been developed for special applications! Truarc rings are installed in easy-to-cut grooves and self-locking types are available which do not require any preparatory machining. Altogether, there are 50 functionally different types . . . some with as many as 98 sizes . . . in 6 metals and 13 finishes.

More than a fastener! Truarc rings function as mechanical components by replacing machined shoulders, set collars, rivets, threaded fasteners and other bulkier and more expensive fastening devices. They eliminate drilling, tapping, threading and other costly machining operations. Speed of assembly and disassembly further reduces manufacturing costs and simplifies field service.

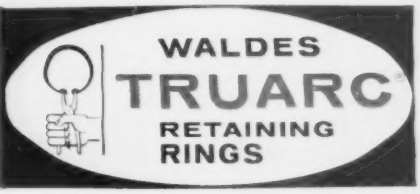
Assembly tools for every requirement: Truarc offers you the most complete line of pliers, applicators, dispensers and portable magazine-fed tools for high-speed ring installation . . . even fully mechanized and automated equipment for mass-production assembly operations.

Engineering Service: We'll be happy to help you solve *your* fastening problems. Send us your blueprints or contact your local Truarc representative or distributor. They're listed in the Classified Telephone Directory under "Retaining Rings" or "Rings, Retaining."

WALDES KOHINOOR, INC.

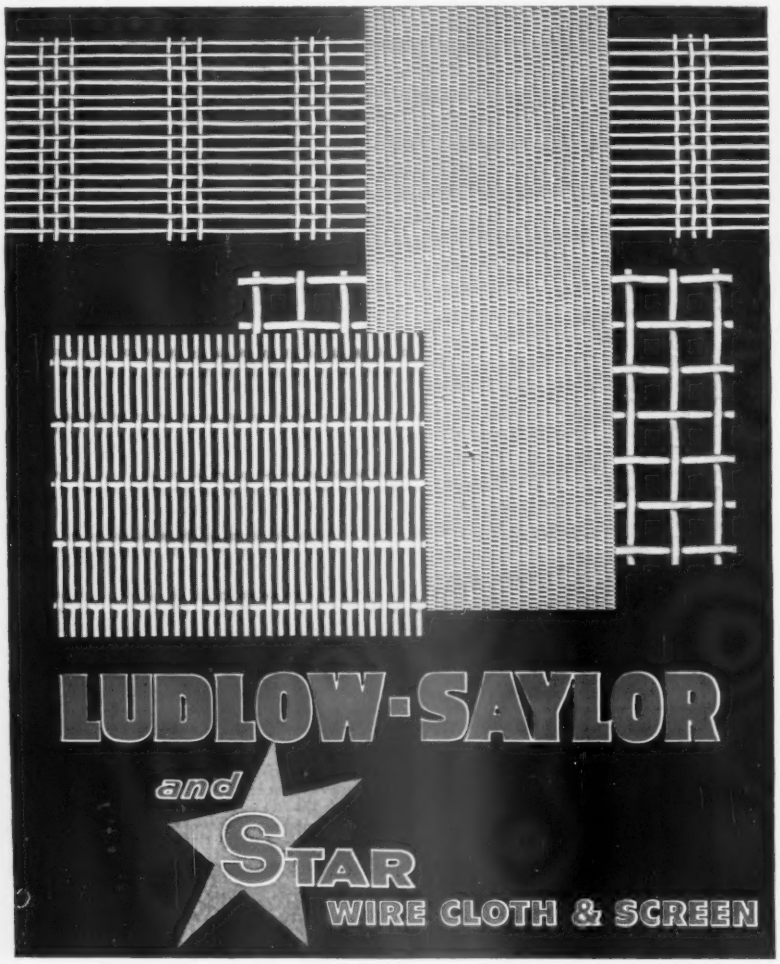
47-16 Austel Place • Long Island City 1, N.Y.

61-6



For More Facts Write No. 232 on Information Card—Last Page

Analyze This Value!



BETTER QUALITY Every foot of wire must meet high L-S standards—All looms and dies are built by Ludlow-Saylor—One of every 3 production employees is an inspector—All to produce the *"industry's finest."*

MORE SERVICE PER DOLLAR Ultimate weaving precision increases durability up to 50% against abrasion, distortion, fatigue—drastically cuts replacement expense, machine downtime and labor—guarantees more output and improved products.

FASTER DELIVERY Enormous stocks of all popular weaves, meshes and metals in St. Louis, Los Angeles and Houston are ready for shipment.

SPECIAL SCREEN AND CLOTH Woven quickly to specification from any stainless and other ferrous or non-ferrous alloy, or from practically any metal that can be drawn into wire.

SPECIAL SHAPES Prompt shipment on sheets, continuous lengths, slit ribbons, cylinders, tubes, cones, discs, rings or other forms.

PRICES ARE ALWAYS COMPETITIVE—WRITE, WIRE, PHONE Founded in 1856 105 years

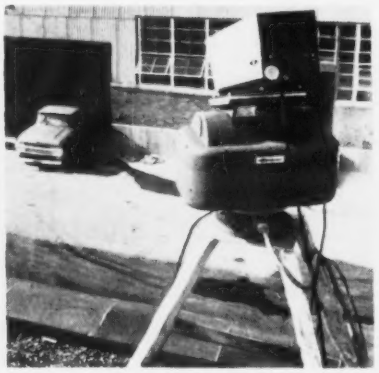
LUDLOW-SAYLOR WIRE CLOTH CO. • 4369 WEST CLAYTON AVE. • ST. LOUIS 10, MO.
STAR WIRE SCREEN & IRON WORKS, INC. (L-S Subsidiary)
Sunset Ave. & Valley Blvd. • City of Industry (L.A. County), Calif.

BIRMINGHAM 512 N. 18th St. ★ CHICAGO 6261 West Grand Ave. ★ DENVER 1530 Carr St. ★ HOUSTON 5638 Harvey Wilson Dr. ★ PITTSBURGH Union Trust Bldg.

For More Facts Write No. 233 on Information Card—Last Page

Products

Closed Circuit TV Needs No Attention



A weatherproof and dustproof closed circuit television system designated the HAWK 401 may be installed in exposed, dusty, hot or cold, and inaccessible locations without care or attention. A test installation on a factory roof has, to date, provided more than 4500 hours of clear picture intelligence without maintenance, camera adjustment or parts replacement. During this test, the camera has withstood ambient temperatures from —22 F to 131 F, more than 30 rainstorms, winds up to 40 mph, and four snow storms. The camera can operate successfully over the widest possible range of light variations, from brilliant sunlight to a single shaded 100 watt bulb, with ample clarity for excellent surveillance requirements. **Diamond Electronics, Lancaster, Ohio.**

Write No. 37 on Information Card—Last Page

Unit Makes Springs in Single Operation

A spring-making machine can produce springs in a single operation without limit to end loop shape at rates ranging from 720 to 6000 per hr. It can accept wire from .008 in. to .034 in. in diameter and offers load tolerance of plus or minus 5%. Improved feed permits more time for coiling, which makes for easier cam motions and smoother operations. Brake is designed to provide highly accurate wire feeding. **The Baird Machine Co., 1700 Stratford Ave., Stratford, Conn.**

Write No. 38 on Information Card—Last Page

GAYLORD researches out the failures

You can't afford to experiment: the wrong kind of shipping container can cost you hours, customers and dollars.

So Gaylord packaging research engineers experiment for you with the complete box, liners, adhesives, interior design—the works. Every Gaylord container that you get is *proven.*

Does your product need a better container? Call your nearby Gaylord Man. Let him and Gaylord Research go to work for you now.



CROWN ZELLERBACH CORPORATION
GAYLORD CONTAINER DIVISION

IN CANADA · CROWN ZELLERBACH CANADA, LTD. VANCOUVER, B. C.

HEADQUARTERS, ST. LOUIS
PLANTS COAST TO COAST

For More Facts Write No. 234 on Information Card—Last Page



Free booklet tells you what to look for in a pressure-sensitive tape

Here's a handy, new booklet that gives clear, concise answers to nearly any pressure-sensitive tape problem. It's based on Johns-Manville's long years of experience in the manufacture of tapes for electrical and industrial applications. It's called "How To Select A Pressure-Sensitive Tape," and tells you how to effect important economies; help speed production; eliminate knotty mechanical difficulties. It tells:

- Why the adhesive qualities of a tape are as important as the backing material.
- What causes tape failure; and how to prevent it.
- A glossary of terms associated with pressure-sensitive tapes.
- A complete list of authoritative technical data files available.

JOHNS-MANVILLE JM PRODUCTS
DUTCH BRAND® TAPES
BOX 359, NEW YORK 16, N. Y.

Please send me a free copy of "How To Select A Pressure-Sensitive Tape."

NAME_____

ADDRESS_____

CITY_____ ZONE_____

COUNTY_____ STATE_____

For More Facts Write No. 235 on Information Card—Last Page

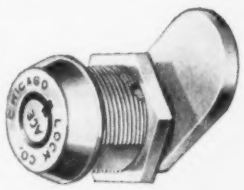


THE KEY TO YOUR SECURITY DESIGN PROBLEM

If the equipment or product you are designing should have a lock, it should have the unique Chicago ACE® Lock. The above key fits the circular keyway of an ACE lock and is as symbolic of maximum security as it is different from conventional keys.

Because of the intricate tumbler combinations possible in a Chicago ACE Lock, you can specify your own registered, unduplicated key cut with duplicate keys available from the factory only.

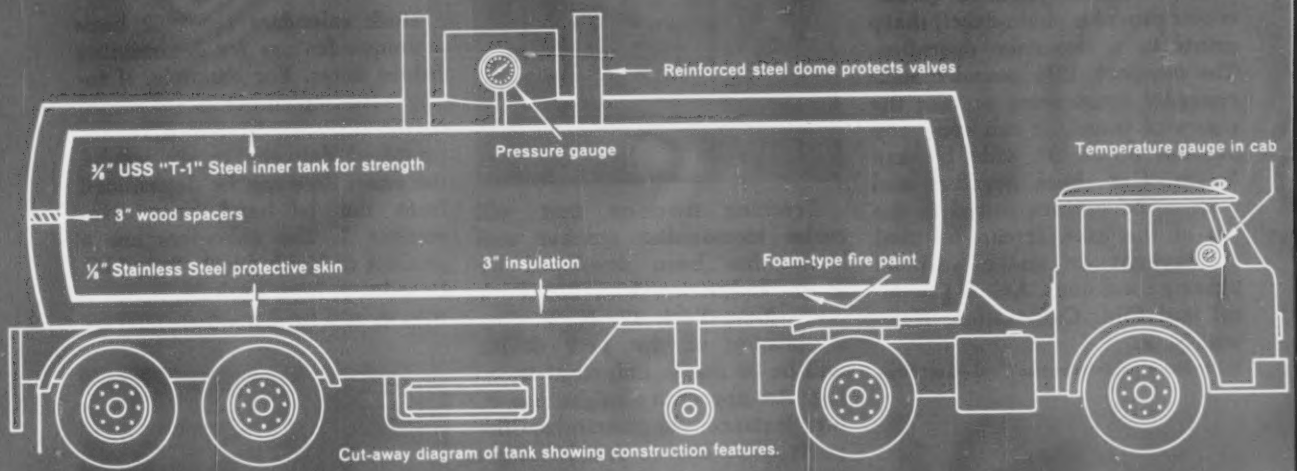
To learn more about the advantages of ACE and the complete line of Chicago Locks, write for a copy of our catalog and bulletins.



CHICAGO LOCK CO.
2052 North Racine Avenue • Chicago 14, Illinois

For More Facts Write No. 236 on Information Card—Last Page

This mark tells you a product is made from modern, dependable Steel



Cut-away diagram of tank showing construction features.

"Untruckable" chemical now hauled safely by USS "T-1" Steel-Stainless Steel tank truck

Liquid ethylene oxide boils at 51.3°F. The vapors are highly flammable and explosive. Until a year ago, it was considered unsafe for delivery by tank truck.

Today, regular deliveries are being made with a special tank truck that's like a huge steel vacuum bottle. The unit was designed and fabricated by Trinity Steel Company, Inc., of Dallas. The inside tank, holding 5,300 gallons of ethylene oxide, is made from USS "T-1" Constructional Alloy Steel which is three times as strong as regular carbon steel. The outer shell is bright, smooth Stainless Steel which reflects heat, helps to keep the tank cool. In between is a three-inch layer of insulation. Ethylene oxide is loaded at 40°F and the tank is capable of keeping it under 45°F for 24 hours — more than long enough to make the deliveries.

Less weight — more payload. Together with Trinity Steel's design and construction concepts, the great strength of USS "T-1" Steel permitted the use of ⅜-inch plate instead of $^{11}/_{16}$-inch, which would have been required with carbon steel. Tank weight was reduced almost 50%; hence, considerably more payload could be hauled. Delivery costs were thus lower and the savings more than justified the cost of the truck.

Other applications. Because of USS "T-1" Steel's exceptional strength, toughness, and high resistance to impact abrasion, it is widely used to build equipment stronger, but lighter in weight. USS "T-1" Steel is readily weldable, and retains its toughness down to −50°F. Write for a copy of our book, "USS 'T-1' Steel," United States Steel, 525 William Penn Place, Pittsburgh 30, Pennsylvania. Since United States Steel does not build trucks, for specific information concerning special transport requirements, contact Trinity Steel Company, Inc., 4001 Irving Boulevard, Dallas 7, Texas. USS and "T-1" are registered trademarks.

United States Steel Corporation · Columbia-Geneva Steel Division · National Tube Division · Tennessee Coal and Iron Division · United States Steel Supply Division · United States Steel Export Company

USS **United States Steel**

Office Equipment and Supplies



The Attache portable **photocopier** provides photo-exact, sharp prints in a two-stage operation. The compact, 12½ pound case is ruggedly constructed to take the rigors of travel. It can copy any original up to 9″ wide by any length. Cut sheet negative and positive papers are stored in the top of the case. It can be used in daylight or under artificial lighting conditions. **Anken Chemical and Film Corporation, Newton, N. J.**

Write No. 41 on Information Card—Last Page



Two models of **paper moisteners** in nine color combinations have been introduced by **E. W. Pike & Co., 711 Pennsylvania Ave., Elizabeth, N. J.** One model has a metal base and the other a porcelain base. Both models have interchangeable steel covers in bronze, satin silver, or jet black.

Write No. 42 on Information Card—Last Page

A capsule to make **ink from water** has been announced by **The Parker Pen Co., Janesville, Wisc.** The device will convert water into a 5000-word ink supply for use in the Parker 61. The capsule is placed at the end of the pen's ink reservoir and immersed in glassful of water. An ink concentrate is dissolved and produces the supply of writing ink.

Write No. 43 on Information Card—Last Page



Teaching machine that will make **memorizing** quicker and easier has been developed by **U. S. Industries, Inc., 250 Park Ave., New York 17, N. Y.** One application of the new device will be its use in industrial training. An apprentice might use it, for instance, to memorize the parts of an engine that he might repair.

Write No. 44 on Information Card—Last Page



Louvered shade on new executive **desk lamp** provides upward lighting which helps eliminate glare and eyestrain. The curving arm positions the light over the seeing area and allows the shade to be tilted where the light is needed. The lamp, a product of **Fostoria Corp., 1200 N. Main St., Fostoria, Ohio,** uses two 18″ fluorescent tubes.

Write No. 45 on Information Card—Last Page



Desk calendars for 1962 have a unique feature for determining future dates. For example, if today were September 26 (as shown in the illustration) and a vendor promised delivery in six weeks, the exact date can be determined from the left-hand page: November 7. The calendars are a product of **Keith Clark, Inc., 1451 Broadway, New York 36, N. Y.**

Write No. 46 on Information Card—Last Page



Two new **Tele-processing devices** permit direct transmission of data over the telephone in computer language regardless of its medium—cards, magnetic tape, or core memory. The fully compatible solid-state units can send or receive business or scientific data over leased communications lines at up to 300 characters per second. They are designed to broaden communications-based data processing capabilities for organizations with a central computer installation at which data received from the field is processed. **Data Processing division, International Business Machines Corp,. 112 East Post Road, White Plains, N. Y.**

Write No. 47 on Information Card—Last Page

Go ahead. The typing is for real.

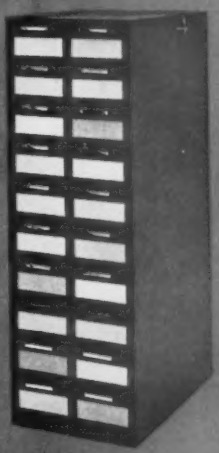
ERASE ON THIS NEW CHAMPION BOND

This is 20 lb. Champion Bond

A new line of color-engineered data processing auxiliary units created specifically for the modern automated office!



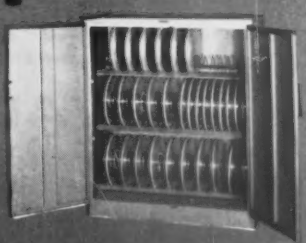
Datacase key punch desks provide the working top space and storage operators always need — and seldom have. Hidden clip holds desk to machine tightly and firmly.



Punched card files. Datacase punched card files provide maximum storage space with sound construction and ease of use. This 20-tray file has a capacity of 76,500 cards. Also available: 10-tray, counter-height file with 38,250 card capacity.



Desk table top files. For master cards and decks of cards which must be always available. This two-drawer file has a capacity of 4,912 cards. Also: four-drawer file, 15,300 capacity, and single-file drawer, 2,456 capacity.



Magnetic reel tape storage. Designed to provide greater security at low per-reel storage cost in the processing area. This counter-height cabinet, with two locking doors, stores 57 reels. Also available in 95 reel capacity.

DATACASE
BY STEELCASE

Datacase is a new word for a new line of key punch desks and chairs, Convertibles and magnetic reel storage cabinets created specifically for the modern automated office. Each unit is characterized by smart design and superb workmanship—and distinguished by the widest variety of colors offered in the field. Twenty-three to be exact. And the finish has an acrylic base which assures many added years of service. Datacase is created by the world's leading manufacturer of fine steel office furniture. Steelcase Inc., Grand Rapids, Michigan: Canadian Steelcase Company Ltd., Don Mills, Ontario.

Datacase is sold only through leading office equipment stores!

Datacase is sold, installed and serviced by the Steelcase office furniture dealer in your area. Call him today for your free copy of our new full-color Datacase catalog. Or, mail this coupon — and we'll send you your copy.

P-11-6

STEELCASE INC.
Grand Rapids, Michigan

Gentlemen: Please send me a free copy of your new Datacase catalog. There is no cost or obligation.

Name_____

Position_____

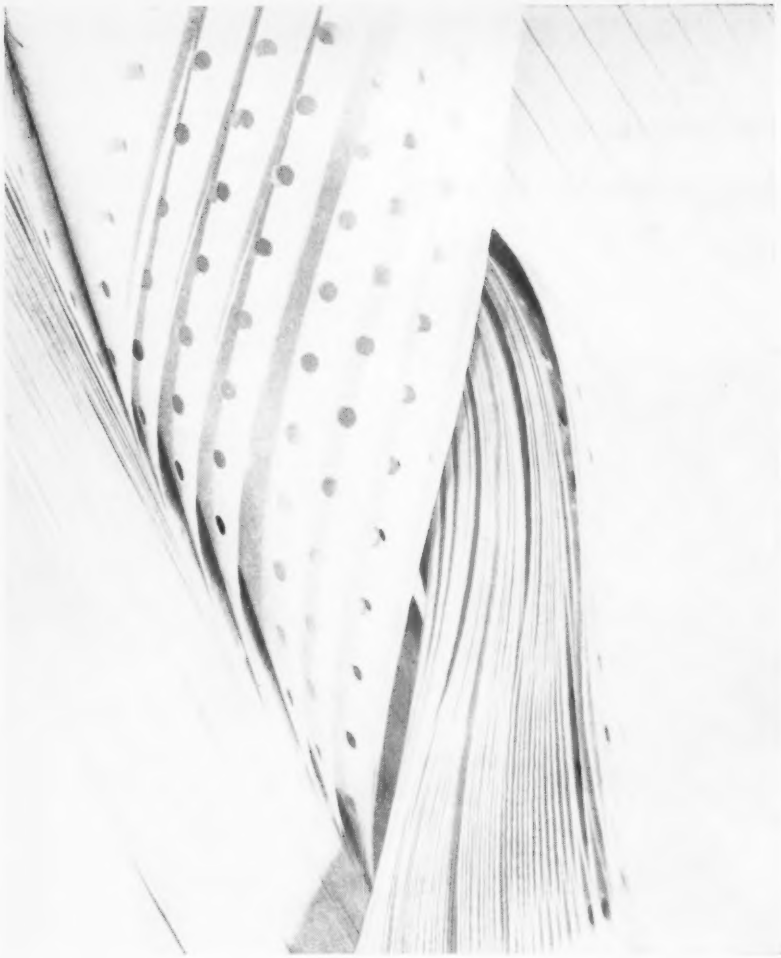
Company_____

Address_____

City_____ Zone___

State_____

For More Facts Write No. 238 on Information Card—Last Page



NO. 1 CANDIDATE FOR VALUE ANALYSIS

We would like to suggest *business forms* as the product most likely to make value analysis pay dividends.

Why? Because superficially all business forms look alike and there's a tendency to buy on price alone. Yet despite the appearance similarity there are *major differences*. And the fact that the original cost of the forms is only about 5% of the cost of *using* them intensifies these differences.

Analyze the differences in background services, in field mechanical service, in warranties, in "make good" experience, in contributions to the industry, in technical quality, in all the surprising number of other elements that enter into business form value analysis.

You make the analysis. But we can predict the outcome — Standard Register is going to be right up there at the top. Let us supply you with facts about our forms so you can see for yourself.

STANDARD REGISTER
BUSINESS FORMS™

THE STANDARD REGISTER COMPANY, DAYTON 1, OHIO

Business Forms and Forms Handling Equipment for Paperwork Simplification

For More Facts Write No. 239 on Information Card—Last Page

Office Equipment



Black-on white **reproductions** of originals up to nine inches wide are possible on the new copier by **Ozalid Division, General Aniline and Film Corp., Johnson City, New York.** It will reproduce all colors whether pen, pencil, ballpoint, typed, printed or stamped from originals on any kind of paper, film or cloth.

Write No. 48 on Information Card—Last Page

Reproduction of halftones, photographs, and line work by **xerography** has been improved with the introduction of a new plate by **Xerox Corporation, Rochester, N. Y.** The procedures for using the new plate are similar to that for conventional xerography, except that—because of the plate's speed—exposure time can be cut as much as 75%.

Write No. 49 on Information Card—Last Page



"I'm sure we can find a spot for you, Miss Keesey . . . Buxton, you're fired!"

versatile (vûr′sə·tĭl) *adj.* turning with ease from one thing to another; able to do many things well; many-sided.



No word more accurately describes the CALL DIRECTOR telephone.

For here is a *complete* communications system, able to meet all your external *and* internal calling needs.

Use it as a regular telephone to dial outside calls. Use it as an intercom system to handle all your interoffice calls—to hold calls while making others, to add an inside extension to an outside call, to set up six-way telephone conferences—and more.

The versatile CALL DIRECTOR telephone is just one of many new and advanced Bell System services available today.

Helping you have better, more profitable communications is the specialty of our Communications Consultants. To reach one of them, simply call your Bell Telephone Business Office.



Says H. G. Anderson, Vice-President of the Denver U. S. National Bank:

"We used to have to go through our main switchboard in order to transfer customer calls from one department to another. At peak hours, this was slow and cumbersome. Then your Communications Consultant recommended CALL DIRECTOR telephones with Bell intercom.

"Now, such calls are transferred instantly from strategic CALL DIRECTOR locations in our building—without help from the switchboard. Our overall efficiency and service to customers have improved sharply!"

BELL TELEPHONE SYSTEM

NO PLASTIC PLUMBING in our BALL PEN...

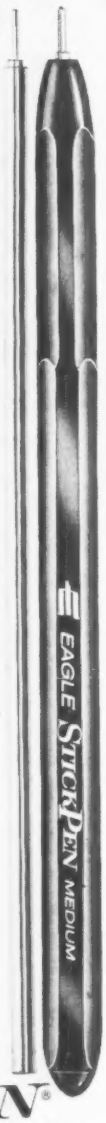
Because only **SOLID BRASS** can do the job!

ENGINEERED FOR BETTER WRITING, the solid brass cartridge of the new Eagle STICKPEN is filled with the finest ink made! Ink that writes best may attack a plastic cartridge forming a "sludge" that contaminates ink and causes the annoying skips and false starts of ordinary ball pens. But the solid brass cartridge of the new Eagle STICKPEN keeps its finer ink pure and smooth-flowing for the life of the pen! And your STICKPEN writes better . . . longer . . . because this solid brass cartridge occupies the full length of its handsome molded barrel!

A SOLID BRASS CARTRIDGE, FILLED WITH THE FINEST INK,

Plus All These Extra Quality Features!

- SILVERED TIP FOR "CUSHIONED" WRITING
- PRECISION TURNED BALL SOCKET
- STAINLESS STEEL BALL
- MOLDED (Not Extruded) BARREL
- SCULPTURED "FINGER-FIT" GRIP
- EACH PEN INDIVIDUALLY TEST-WRITTEN BY HAND



and only **29¢** MEDIUM POINT Fed. Tax. Incl.

AT ALL STATIONERS

EAGLE® STICKPEN®

GUARANTEED BY EAGLE RESEARCH

EAGLE PENCIL COMPANY

Headquarters: Danbury, Connecticut

NEW YORK • LONDON • TORONTO • MEXICO • SYDNEY • BOGOTA

Write No. 240 on Information Card—Last Page

Office Equipment



A new multi-use, low-cost **filing cabinet** has built-in reinforced multi-wall construction, permanent suspension rails, and a detachable cover. The cabinet is furnished with 75 file envelopes 17″ wide and 22″ deep. Each envelope has a die-cut handle and hanger laminated to it. **Clarkson Company, 724 Desnoyer St., Kaukauna, Wisc.**

Write No. 50 on Information Card—Last Page



Mail distribution and a mobile filing cabinet are the basic uses for a new rubber-tired **cart** introduced by **W. A Charnstrom Co., 422 South 7th Street, Minneapolis 15, Minn.** Frame and uprights of the new cart are chrome plated.

Write No. 51 on Information Card—Last Page

A four-page **bulletin** describes and illustrates design and operating details of a 42-inch capacity budget-priced whiteprinter, the Streamliner 400. Covers engineering features designed to give sharp, high quality prints from any translucent original. Includes a cross-sectional diagram showing exposure unit. **Ozalid division, General Analine & Film Corporation, 531 Corliss Lane, Johnson City, N. Y.**

Write No. 52 on Information Card—Last Page



A **duplicator** which will print on an area 16½″ wide x 13½″ long was recently announced by **The Gestetner Corp., 216 Lake Ave., Yonkers, N. Y.** The new machine may also be used with letter-size paper and 3 x 5 post cards.

Write No. 53 on Information Card—Last Page



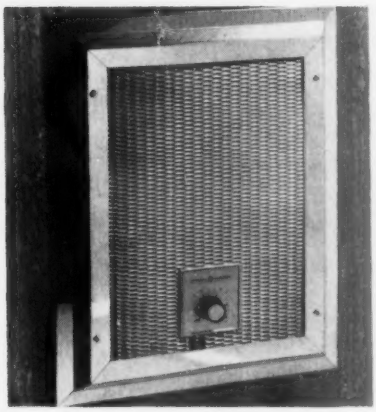
Rug-Ramp protects six- or seven-rise office stairway carpeting from dirt and wear. It is made from tough, washable fabric which is held securely by aluminum rods and staples. The **covering** is approximately two feet wide and three-and-a-half yards long; it may be dyed to match carpeting. **Emarco, 6836 Sheridan Road, Chicago 26, Ill.**

Write No. 54 on Information Card—Last Page



Dictating and transcribing machine which features a remote control microphone has been introduced by **North American Philips Co., 230 Duffy Ave., Hicksville, L.I., N.Y.** The microphone also serves as a speaker for playback and dictation review. Included in the machine is a switch for going from dictation to telephone-call recording. The tapes are reusable and the machine has a quick-erase mechanism to facilitate their reuse.

Write No. 55 on Information Card—Last Page



A wall-type **electric heater** has been introduced by **General Electric Co., Appliance Park, Louisville, Ky.** Air is drawn in from below, passed over the heating elements and directed out into room. Control dial on the unit is a combination on-off and thermostat switch which selects and maintains the room temperature.

Write No. 56 on Information Card—Last Page

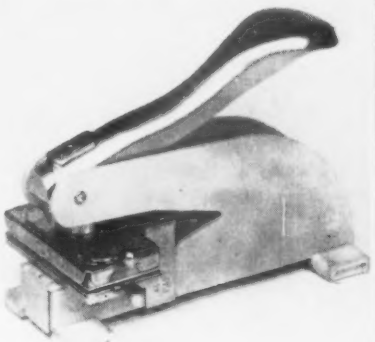
A new electrically operated, fully automatic, eight-station **collating machine** reduces collating costs, takes up little space, and operates with speed, accuracy, and simplicity. The friction fed machine, Model RH-1, collates and staples at the speed of 3000 units per hour. Standard equipment includes a metal table with utility shelf, an offset stacker, and an automatic stapler. **Business Machines division, Fairchild Camera and Instrument Corporation, 20110 Detroit Road, Cleveland 16, Ohio.**

Write No. 57 on Information Card—Last Page



Automatic **copying machine** that turns itself on, supplies the copy paper, makes exposure, peels away the negative, adjusts itself to any length original, trims, and delivers prints was introduced recently by **Ampto, Inc., Newton, N. J.** The new unit makes black-and-white copies of all colors and will take any kind of original up to 11″ wide.

Write No. 58 on Information Card—Last Page



A desk model stationery **embosser** has been introduced by **Samuel H. Moss, Inc., 36 East 23rd St., New York 10, N. Y.** It's an all metal press with metal dies and accommodates a three-line text and a monogram or design sized 1¾″ x ¾″.

Write No. 59 on Information Card—Last Page

FREE EAGLE® STICKPEN®



included in

FREE SCIENTIFIC WRITING TEST KIT!

Purchasing agents who've used this kit acclaim it "The most practical measure of ball pen performance ever devised!"

Get the actual handwriting test that every Eagle STICKPEN must pass after it has successfully passed 10 other rigid "Quality Control" tests! Specially devised by Eagle laboratory technicians, this scientific writing test shows up even the slightest imperfection of any ball pen . . . under actual writing conditions! No buying executive responsible for supplying his personnel with good office pens can afford to be without this instructive test-kit!

GET YOUR SCIENTIFIC WRITING TEST KIT... NOW... FREE! Compare in your own hand, the Free Eagle STICKPEN against any other ball pen—using your own individual writing method and style!

FILL OUT AND MAIL THIS COUPON!

EAGLE PENCIL COMPANY, DANBURY, CONN.

Without obligation, please send me the new Eagle STICKPEN included in the FREE WRITING TEST KIT that shows up even the slightest imperfections of any ball pen, under actual writing conditions!

Name_____

Title_____

Company_____

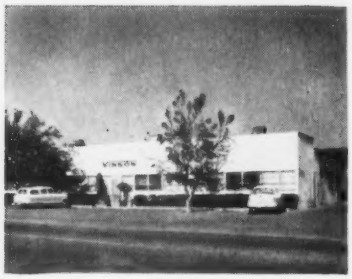
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City_____ Zone_____

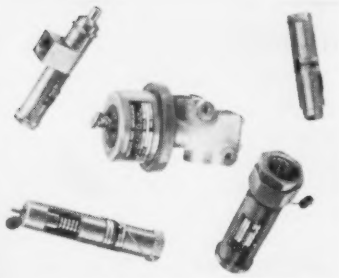
State_____

P

Write No. 240 on Information Card—Last Page



EXTERIOR of Vinson Manufacturing Company.



THIS CONCERN manufactures hydraulic and pneumatic valves.



THIS NCR SYSTEM pays for itself in less than one year.



LESTER E. BOND, CONTROLLER of Vinson Manufacturing Company.

"Our **NCR** Accounting System saves us $8,500 a year... pays for itself every 10 months!"

—Vinson Manufacturing Co., Inc., *Van Nuys, Calif.*

"Our NCR Accounting System gives us greater efficiency, furnishes management with more up-to-date information, and helps us increase profits. Here's how our NCR System has done this and more.

"Payroll, accounts payable, and other general accounting functions, which previously were tediously hand prepared, are now quickly handled by our System. With our NCR, we can prepare reports and obtain factual information more easily and readily than ever before.

"Figures show that our NCR Accounting System saves us $8,500 a year, paying for itself every 10 months. But we can't measure in dollars and cents many intangible returns, such as neatness, less employee tension, etc., that are automatic by-products of the System. We are tremendously pleased with our NCR System."

Lester E. Bond
Controller
Vinson Manufacturing Co., Inc.

Your business, too, can benefit from the many time- and money-saving features of an NCR System. NCR Systems pay for themselves quickly through savings, then continue to return you an extra regular yearly profit. The NCR worldwide service organization will help protect this profit. Ask us about the National Maintenance Plan. (See the yellow pages of your phone book.)

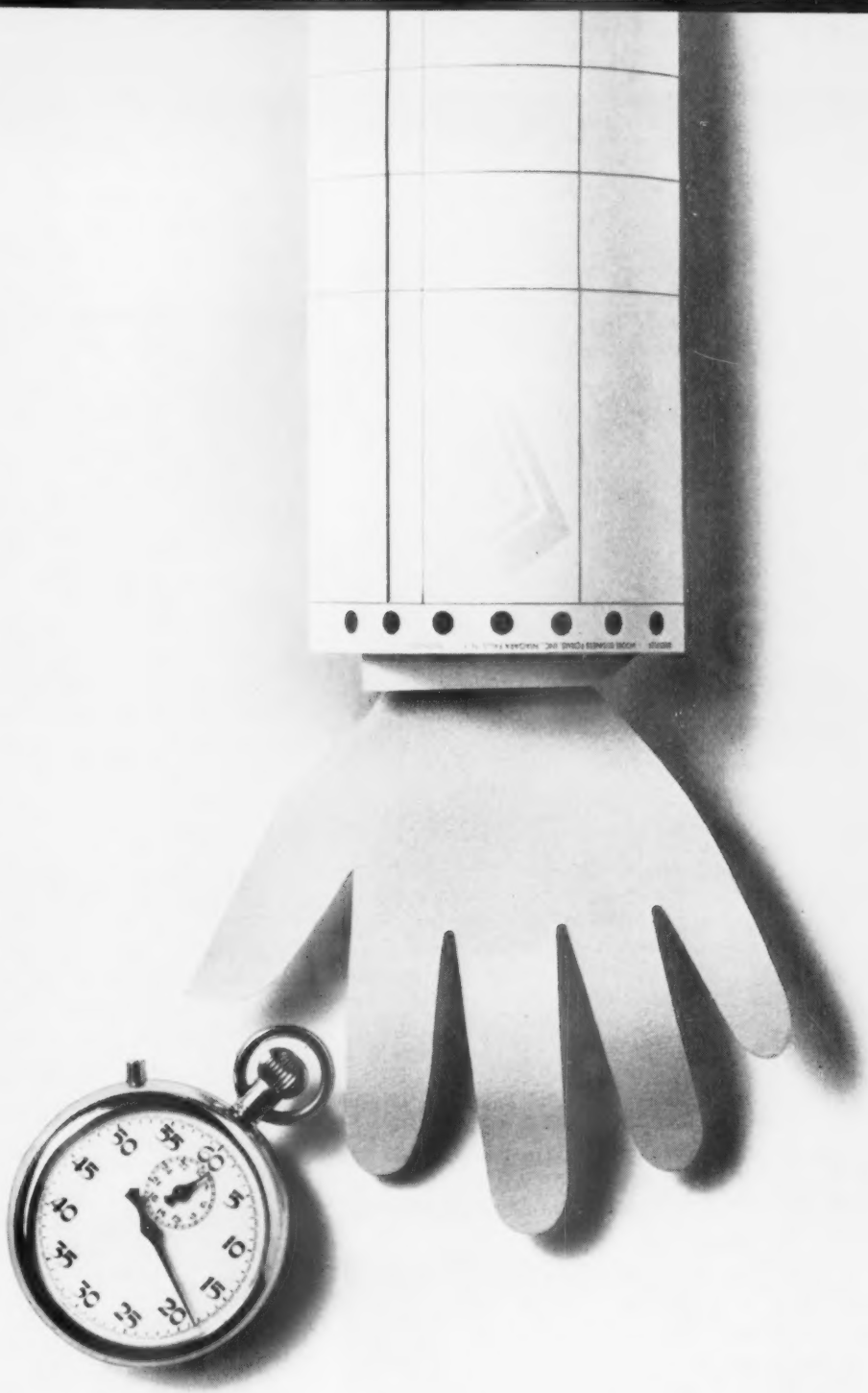
NCR ®TRADEMARK—REG. U.S. PAT. OFF. *National*

ACCOUNTING MACHINES
ADDING MACHINES • CASH REGISTERS
ELECTRONIC DATA PROCESSING
NCR PAPER (NO CARBON REQUIRED)

NCR GOES ALL THE WAY FROM ORIGINAL ENTRIES TO FINAL REPORTS

THE NATIONAL CASH REGISTER COMPANY, Dayton 9, Ohio
1,039 OFFICES IN 121 COUNTRIES • 77 YEARS OF HELPING BUSINESS SAVE MONEY

For More Facts Write No. 242 on Information Card—Last Page



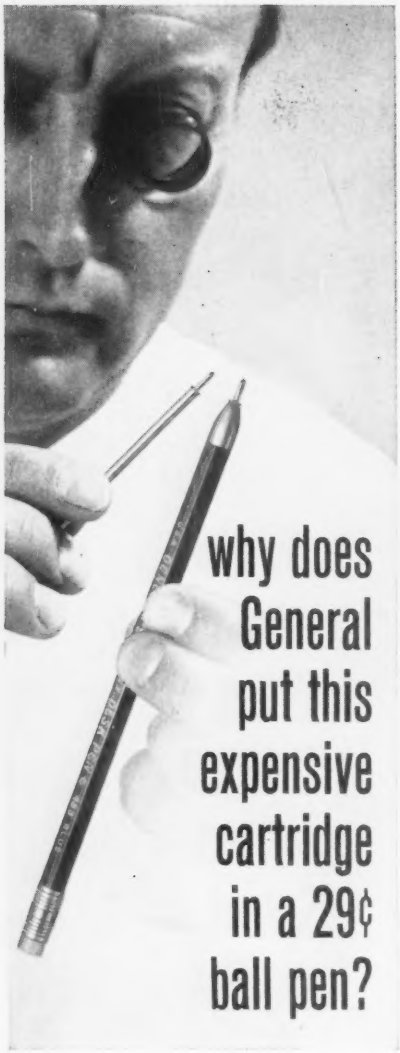
5 WAYS THE MOORE MAN CAN GIVE YOU A HAND

1. SPEED—Procedures can be fast if a system is designed to simplify work and cut waste motion. The Moore man can help by designing a forms construction to produce all records from one writing. You can save steps, time, clerical effort and money . . . and make gains in other important ways, such as 2. Cost; 3. Control; 4. System; 5. Paperwork. Build control with Moore Business Forms.

An extra 'employee' working for you—Which forms should you have? The Moore man isn't limited—he can furnish any forms construction you need. He knows systems that have helped others in your field. He's backed by Moore's vast manufacturing facilities and research teams who are at work designing forms that reduce paperwork. And Moore plants are located near you for fast service.

MOORE BUSINESS FORMS

Moore Business Forms, Inc., Niagara Falls, N. Y. • Park Ridge, Ill. • Denton, Tex. • Emeryville, Calif. Over 300 offices and factories in North America.



You'll find this superlative cartridge in many $1.75 and $2.00 ball pens. This is the same cartridge that wrote 6½ miles without clogging, blotting, smudging or smearing.* General now puts it in their 29¢ Semi-Hex ball pen. Why? First, because you want the finest writing instrument you can get at the lowest possible cost. Second, because the cartridge is the key to a pen's smooth-writing, quality and writing ease—not push buttons, brass caps or fancy clips. When you want economy—the best buy for your money, ask your dealer for General's 29¢ Semi-Hex ball pen. Or write on your letterhead for FREE SAMPLES.

findings of New York Testing Laboratories

GENERAL PENCIL COMPANY

69 FLEET STREET, JERSEY CITY 6, N. J.

Write No. 244 on Information Card—Last Page

Office Equipment

New plastic material is being used in a line of **ring binders.** It is made as a one-piece cover and is available in 8½ x 11 sheet size. The binders are sold by **Cook's Inc., Blackwood, N. J.**

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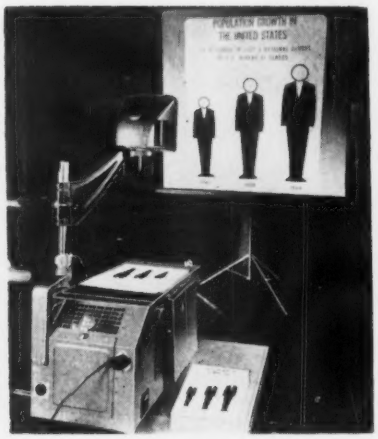
A heavy-duty, two-door steel **locker** for supervisory personnel has been announced by **Penco divison, Alan Wood Steel Company, 200 Brower Ave., Oaks, Pa.** Standard equipment on the locker is two hat shelves, five coat hooks, and a hanger rod. A built-in feature is a separate compartment—with either a lock or spring catch—for holding personal items and valuables while the user is on the job.

Write No. 61 on Information Card—Last Page



Low cost, contour **chair** molded from polypropylene has been introduced by Alladin Plastics, Inc. It is suitable for use both indoors and outside in all weather. The plastic material will not chip and can be washed with soap and water to remove scuff marks and stains. The plastic material is a product of **Avisun Corp., 1345 Chestnut St., Philadelphia 7, Pa.**

Write No. 62 on Information Card—Last Page



Transparencies for transparency projectors can now be prepared—direct from original art or copy—without camera, dark room, or chemicals. At the same time, a duplicating master is prepared, permitting immediate production of duplicate copies for distribution to the viewing audience. The entire operation takes less than 15 minutes. **Gestetner Corporation, 216 Lake Ave., Yonkers, N. Y.**

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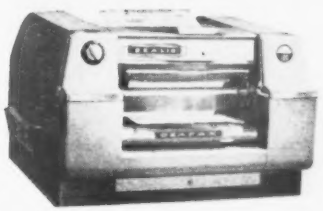


The Printess and Planocop **photocopiers** are now automatic, completely eliminating the problem of developer-fluid mixing. Both machines have a built-in mechanism for a developer-solution cartridge. The fluid flows into the tank and returns to the cartridge by controlling the lever. **American Dictating Machine, 51 W. 45 St., New York 36, N. Y.**

Write No. 64 on Information Card—Last Page



Bill and Collect Faster with the Ozafax 120



OZAFAX 120®
Lowest priced one-step whiteprinter on market. Reproduces any translucent material up to 11" wide. Fits easily into your present order-invoicing system.

"Lazy money" . . . money tied up by laggardly billing . . . ups your costs, cuts your profit, dulls the competitive edge of your product.

Eliminate it. Get and keep your billing up to date with the Ozafax 120. Order-invoicing by Ozalid, fastest known way to process your orders, frequently reduces the time cycle between shipping and billing from 8 days to 2!

Faster, error-proof Ozafax billing saved one company $15,000 yearly . . . another $17,000. What can it save you?

Make your money work harder for you. The coupon brings facts on this compact, multi-purpose table copier. Mail it today.

OZALID®

Division of General Aniline & Film Corporation, Johnson City, New York

REMEMBER, FOR PEAK EFFICIENCY, ALL OZAFAX COPIERS WORK BEST WITH OZAFAX SENSITIZED MATERIALS

Mr. James A. Travis, Mgr., Marketing
Ozalid, Dept. 364, Johnson City, New York

More information please, on how the Ozafax 120 can increase my liquid assets.

Name_____

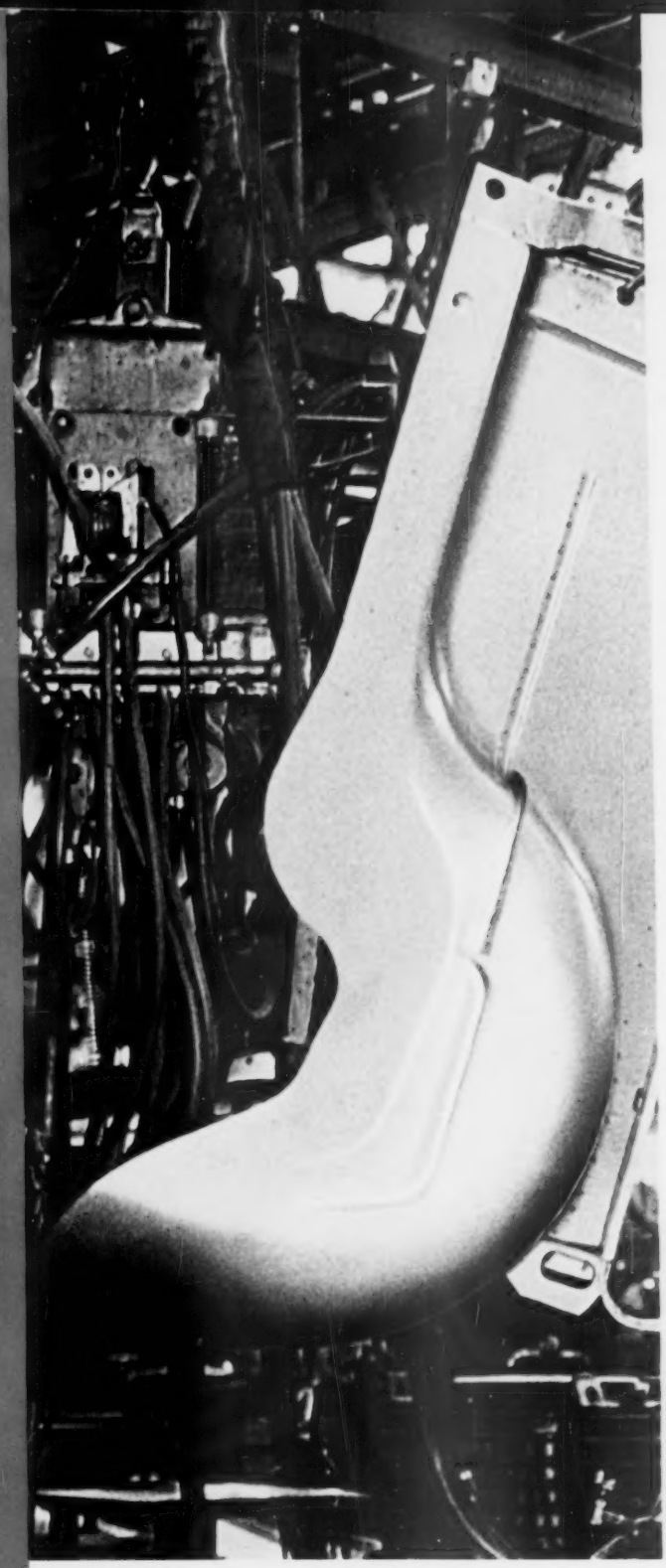
Firm_____

Address_____

City_____

For More Facts Write No. 245 on Information Card—Last Page





DRAW

New Youngstown rolling and annealing capacity means ready availability of higher quality sheet steel

New sheet steel from Youngstown thrives in an atmosphere all its own. In 50 new stack annealing furnaces, Youngstown sheet takes on the exact grain structure and degree of plasticity you need for forming. You get the precise working characteristics required for mild or deep drawing quality.

Quality control in annealing is only a part of Youngstown's sheet story. A modernized 79″ hot strip mill with electronic testing devices and automatic gauge control equipment assures you of more uniform quality steel sheet. This giant mill rolls huge 38,000 pound coils, delivers fewer welds, reduces your coil "down time." Prior to annealing, cold tandem mills reduce thickness to strict tolerances and give the sheet its exacting finish.

Order new Youngstown sheet in widths from 24″ to 72″. Use it in mild and deep draws. Work with it. You'll find it delivers all the qualities you need. Specify Youngstown sheet from 28 Youngstown District Offices or from your nearby Steel Service Center. Specify Youngstown's new annealing process. Specify softness. Or tempered hardness. You can depend on getting precisely what you want, when you choose Youngstown sheet.

Youngstown – growing force in steel



For full details on Youngstown sheet and annealing write: Dept. 11-D,
The Youngstown Sheet and Tube Company, Youngstown, Ohio

Steel

N.I.G.P. Holds 16th Conference in N. Y. C.

"PURCHASING is one of the most significant areas of public administration," said President John F. Kennedy in a message to the National Institute of Governmental Purchasing at its recent annual conference and exhibit in New York City.

More than 1500 federal, state, local, and foreign public purchasing executives attended the three-day meeting. The theme for the conference was "More Value for the Tax Dollar."

Many prominent speakers addressed the group on a wide variety of subjects, including cost reduction, improved procedures, and the overall economy.

One outstanding speaker was Laurence A. Knapp, a Washington, D.C. attorney, who spoke on "Foreign Purchasing and its Challenge to Professional Purchasing." He said that the purchase of a foreign product, which is a better buy than a competing domestic product, serves the most essential interests and security of this country.

"Of all the trade restrictions which still exist in this country," he declared, "Buy Americanism is the worst, both in principle and practice. It violates the very foundations of the trade policy which the United States has proclaimed for nearly three decades."

Otto R. Winter, president of N.I.G.P. and newly-appointed purchasing agent for the City of Philadelphia, presided during the 16th annual conference of the public purchasing executives. General conference chairman was Roger Browne, commissioner of purchase of the City of New York.

(*Please turn to page* 150)



Albert Hall (l.), hard-working executive vice president of N. I. G. P., chats with Andrew L. Lehrbaummer, city purchasing agent of Milwaukee, during the second-day luncheon.

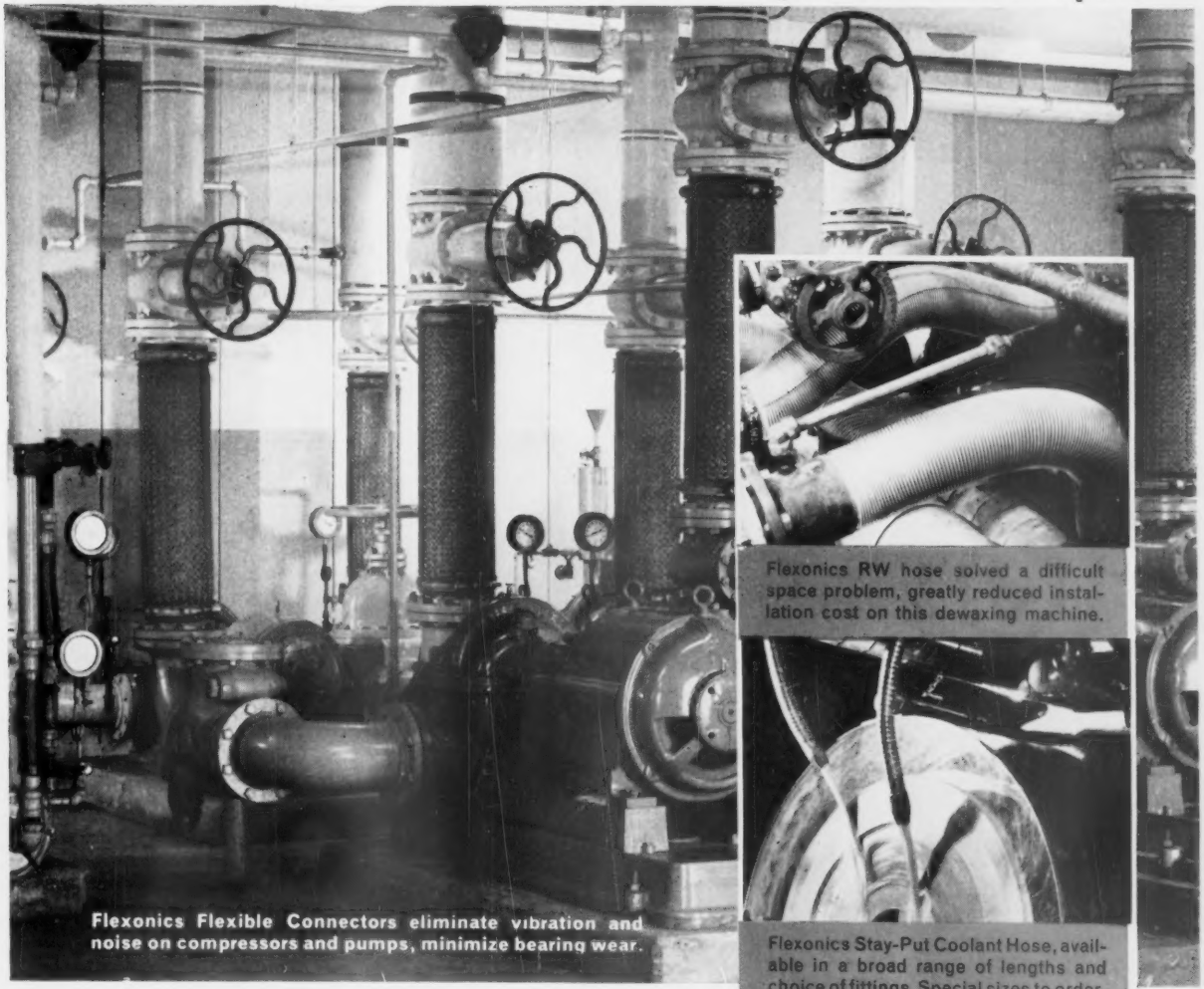




Exhibits at the product show attracted a great deal of attention from purchasing agents.

John Krieg (r.), City of Cincinnati, former president of N.I.G.P., was one of the many who came to listen to his fellow P.A.'s in the meetings and to exhibitors in the products display.

FLEXIBLE METAL HOSE . . . the practical solution to problems of vibration • misalignment • shock • thermal expansion • limited space



Flexonics Flexible Connectors eliminate vibration and noise on compressors and pumps, minimize bearing wear.

Flexonics RW hose solved a difficult space problem, greatly reduced installation cost on this dewaxing machine.

Flexonics Stay-Put Coolant Hose, available in a broad range of lengths and choice of fittings. Special sizes to order.

METAL HOSE CAN SAVE YOU MONEY, important money—by prolonging the life of your equipment . . . reducing piping installation costs . . . minimizing down time . . . eliminating noise. And for the broadest line of metal hose and fittings, the most advanced technical experience . . . and fine quality, depend on Flexonics—the most experienced name in metal hose. Your local Flexonics PMS distributor is a Pipe Motion Specialist. He carries a complete stock of hose and fittings, is equipped to fabricate complete assemblies to your specifications. Call him for fast, dependable service. If you prefer, use the coupon for your FREE copy of the Flexonics Metal Hose Design Guide.

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PIPE
MOTION SPECIALIST

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EXPANSION JOINTS
BELLOWS • SPECIAL TUBULAR ASSEMBLIES

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FLEXONICS CORPORATION OF CANADA, LTD.
BRAMPTON, ONTARIO

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Flexonics
390 East Devon
Bartlett, Illinois

Send free copy of Flexonics Metal Hose Product and Design Guide. Also send the name of your local distributor.

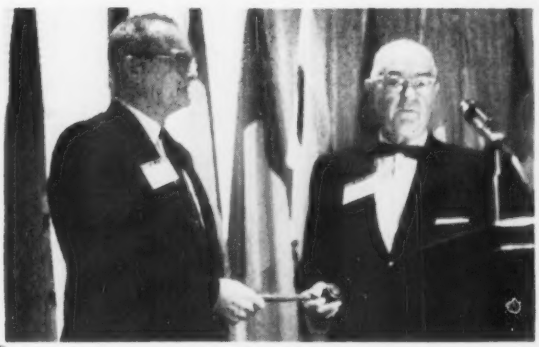
For More Facts Write No. 247 on Information Card—Last Page

Association News (*Continued from page* 148)



Mrs. Agnes Mahoney, city purchasing agent of Yonkers, N.Y., and Edward Jones, director of purchases for New York State Thruway Authority, exchanged views during one of the luncheon sessions.

Otto Winter (l.), City of Philadelphia retiring president of N.I.G.P., receives the gavel from Ernest Brewer, City of Atlanta.

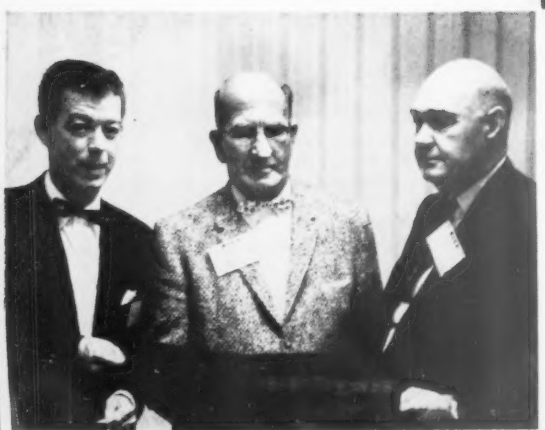




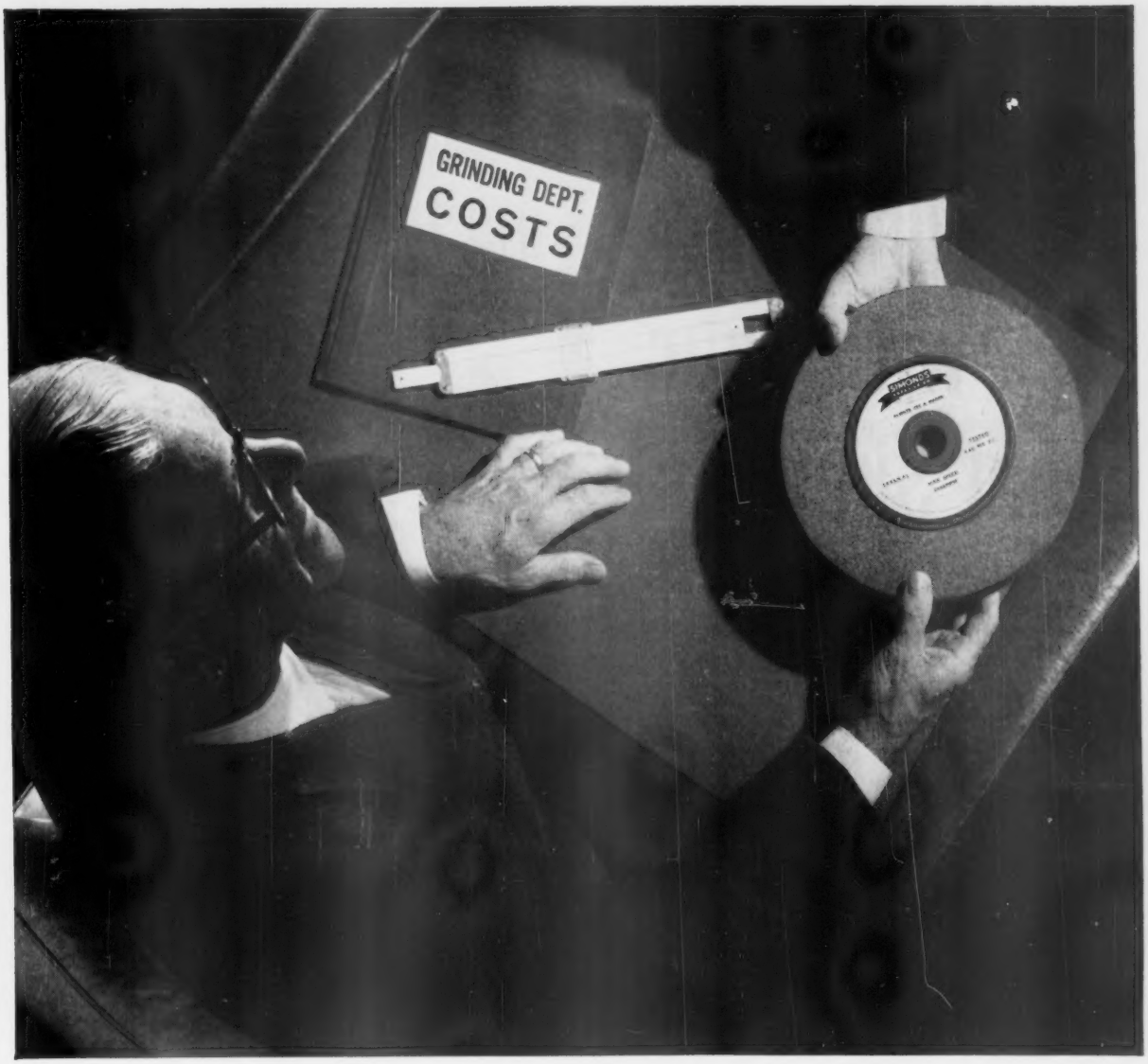
A distinguished group of public purchasing officials participated in a workshop session for new executives. The group was also available on an individual basis to discuss administrative problems too complex for the regular conference session.

Top executives from the New York City department of purchase conducted a panel discussion on topical subjects.





Verne O. Gehringer (c.), San Diego County P.A., was elected president of N.I.G.P. at the closing business session of the three-day conference. Rexford Wessels (l.), District of Columbia, and G. Lloyd Nunnally, Commonwealth of Virginia, were elected to vice presidential posts.



An important cost ratio . . .
and how to improve it

Wheel life to wheel output! With that ratio right, you save machine and operator time . . . cut rejects. And that's where Simonds can help you. How? With grinding wheels that head into the work with a bite that keeps biting . . . wheels with speed and stamina to make fast, efficient work of the toughest, hardest metals . . . wheels that save set-up time by often eliminating the need for wheel change when switching operations . . . wheels your Simonds distributor can supply in specifications that give you that essential, cost-cutting ratio between performance and production. Send for illustrated catalog now.

SIMONDS ABRASIVE CO.
PHILADELPHIA 37, PENNSA.
DIVISION OF SIMONDS SAW AND STEEL CO.

your "buy-pass" for better grinding
CALL YOUR SIMONDS DISTRIBUTOR
helping YOUR business is HIS business

WEST COAST PLANT, EL MONTE, CALIF. — BRANCHES: CHICAGO • DETROIT • LOS ANGELES • PHILADELPHIA • PORTLAND, ORE. • SAN FRANCISCO
SHREVEPORT — IN CANADA: GRINDING WHEELS DIVISION, SIMONDS CANADA SAW CO., LTD., BROCKVILLE, ONTARIO • ABRASIVE PLANT, ARVIDA, QUEBEC

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Start Saving Now with Your Local Simonds Distributor's TRIPLE-



LOCAL STOCKS

mean Simonds cutting tools are available right in your own backyard. You save on inventory and stockroom space.

A BIG Reason





LOCAL SPEED

means fast delivery. Greater convenience, too, with just one order, one bill, one check covering many items.



LOCAL SKILL

means your local Simonds Distributor is trained in the proper application of Simonds "famous quality" cutting tools. He's always "on call" . . . ready and able to help you solve your cutting problems.

S-SERVICE

Why "Simonds Means Savings Whatever You Cut"

There is an important difference in Simonds Distributor's Service that means *big* savings for you.

Simonds service is *local* — delivered by the top distributor in your neighborhood. A carefully selected group of local businessmen, they are trained to give you a good deal extra in product and application knowledge, speedy service, and large local stocks.

This is what we call Simonds famous "Triple-S-Service" — the finest cutting tool service there is.

Why settle for less? Start saving now with better cutting tool service and performance . . . call your local Simonds Distributor today.



Get your Simonds Distributor's
TRIPLE-S-SERVICE
For Local Stocks—Local Speed—Local Skill

SIMONDS SAW AND STEEL CO.

FITCHBURG, MASSACHUSETTS

Factory Branches in Union, N. J., Chicago, Shreveport, La., Los Angeles, San Francisco, Portland, Ore. • Canadian Factory in Granby, Que. • Simonds Divisions: Simonds Steel Mill, Lockport, N. Y.; Heller Tool Co., Newcomerstown, Ohio; Simonds Abrasive Co., Philadelphia, Pa. and Arvida, Que., Can.

800 Attend 2nd District Conference



Russell Stark, president and Chris Maier, vice president for N.A.P.A. District 2, smile in front of the sign that announces that the Southwestern Purchasing Conference reception and banquet is by "initiation only."

Photos Courtesy Southwestern Purchaser



J. Erik Jonsson, chairman of the board, Texas Instruments, addresses 15th Annual Southwest Purchasing Conference. Others at head table are, left to right, Frank Wodrich, Chris Maier, John Morris, Ray Langford, and Ben R. Newbery. Mr. Jonsson served as President of the Dallas Association in 1938.

DALLAS lived up to its reputation for hospitality in a grand and gracious manner for the more than 800 purchasing executives who attended the 15th Annual Southwest Purchasing Conference. The conference got under way in real Texas style with a Round Up Party in the grand ballroom of the Statler-Hilton Hotel on Wednesday night. The ballroom was decorated to look like a ranch with chuck wagon from which guests helped themselves to refreshments, roast beef, baked beans, and other foods. Most of the guests were dressed western style—some with blue jeans, cowboy hats, and boots.

The business side of the program was kicked off the following morning by J. Erik Jonsson, chairman of the board of Texas Instruments and a past president of the Dallas Association. Jonsson warned P.A.'s not to stand pat and to be willing to adapt to change. "The solutions to problems which were effective a few years ago are no longer useful," he declared.

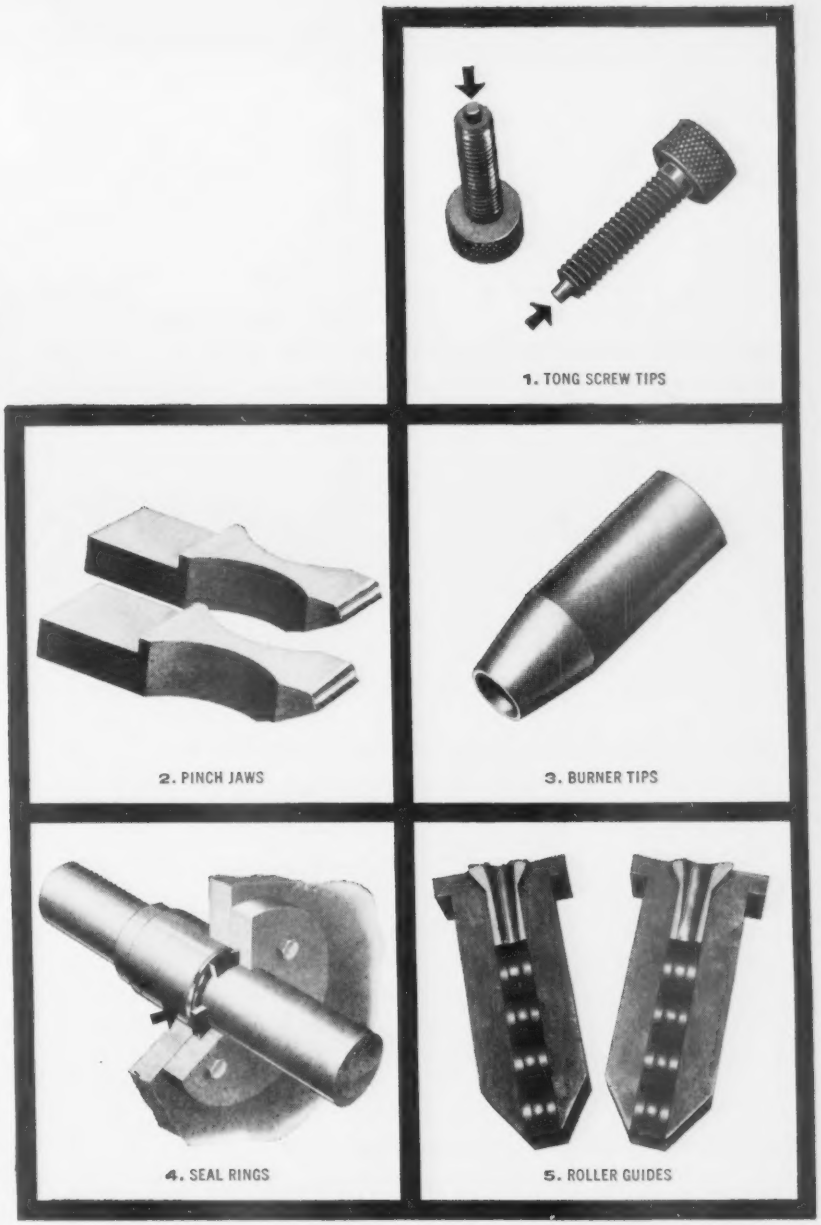
Following Jonsson's talk, purchasing executives broke up into two workshop groups. In one workshop session, conducted by ex-President Paisley Boney and Charlie Johnson—top men on the national public relations committee—members sharpened their

(*Please turn to page* 156)



Chief Bill Carey, surrounded by his Indians, tells Byron Sadler and Frosty Cravens that he wants a full attendance at next year's conference to be held in Oklahoma City, October 11-12, 1962. Beating the drum is Klein Canady. Others in the tribe, left to right, are Gene Burton, L. D. Hinderliter, Jack Chitwood, Mack Holaday, Royal Brust, rear, and Jim Hood.

let's evaluate our carbides in terms of your needs



You may find it profitable to discuss your needs for unusual engineering materials with a specially trained Kennametal Carbide Engineer. He *devotes his time exclusively* to applying Kennametal* hard carbides in metalworking tools and for construction of machine parts that normally wear out quickly.

Kentanium,* for instance, is a titanium carbide for use where resistance to heat is a prime requisite. This series of heat-resistant carbides can operate continuously at temperatures up to 2200°F—and at higher temperatures under specific conditions. Other unique properties include high strength, high resistance to thermal shock, abrasion, deformation, and highest stiffness-to-weight ratio of any known material.

Some typical examples of how Kentanium is being used in general industrial applications are:

1 Kentanium tips on tong screws, used to grip glass sheets as they pass through annealing furnace, are subjected to temperatures of 900°F to 1200°F—have average service life of 36 hours, or 150 to 1 ratio over steel screws.

2 Pinch jaws made of Kentanium solve a glass tubing pinch-off and vacuum sealing problem in the production of sealed beam lamps. Operating in a 1700°F flame that heats the withdrawal tube, they average 215,000 tubes as compared to 25,000 for steel jaws previously used.

3 Kentanium flame hardening burner tips, located inside burner head, showed no appreciable wear after 16 months' service. Copper tips averaged 3 to 4 months.

4 Seal ring of Kentanium, used in sealing a jet engine shaft, operated without lubrication at 15,000 sfm and at 1100°F—outperformed every other material tried.

5 Kentanium roller entrance guides rotate at speeds up to 4500 rpm, as hot wire rod is fed into finishing stand. Compared with hardened steel roller guides, Kentanium guides have increased service life 20 to 1; reduced maintenance cost up to 82%; and improved quality.

The outstanding properties of Kentanium, plus our creative research and development activities, are helping translate ideas into vital components used in all types of equipment to provide greater reliability and longer life.

For more information, call your Kennametal Representative or write for Booklet 666, "Proven Uses of Kennametal and Kentanium," which describes over 80 applications in many different industries. KENNAMETAL INC., Dept. PM, Latrobe, Pennsylvania.

*Trademark

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INDUSTRY AND KENNAMETAL ...Partners in Progress

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Billions Of BENDS

Prove SANDVIK SPRING STEEL'S Fatigue Resistance



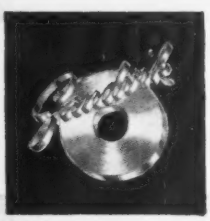
Here is another example of the extraordinary fatigue life you can get from Sandvik Spring Steel.

C. P. CLARE & CO. uses Sandvik 12W12C1 Steel as the spring support for the armature assembly in their line of Mercury-Wetted Contact Relays. Here, from a letter by Mr. C. H. Smith is what they say about it.

"The steel piece deflects through a complete cycle — once for each operation of the relay. Sandvik Steel was chosen for its excellent fatigue resistance. When you realize Clare HG relays have a life expectancy measured in billions of operations you can see the importance we place on selecting top grade materials."

The steel used for this application is only one of Sandvik's many types of specialty spring steels. Each type provides consistent, predictable results for a specific range of application.

For more information on Sandvik Specialty Steels and how they can be applied advantageously, use the coupon below or send us a note on your letterhead.



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☐ Please send me further information on Sandvik Steels.
☐ Please have your representative phone for an appointment.

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COMPANY _____
ADDRESS _____

SS-22b

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Association News

(*Continued from page* 154)

public relations skills. In the other workshop they learned more about value analysis.

In the afternoon, they heard Dean Ammer, executive editor of PURCHASING Magazine, discuss the "Moral Responsibilities of Purchasing." According to Dr. Ammer, "If a manager has the least doubt about a man's character, the last place he should want to put him would be in purchasing." He pointed out the real solution to ethical problems can be reached only by top management and that when purchasing agents are unethical, they are probably reflecting their boss's lack of ethics.

Following Dr. Ammer's talk, there was a second round of workshop sessions—those who had attended the morning value analysis session attended the public relations meeting and vice versa.

In the evening, over 1000 purchasing executives and their wives sat down to a gourmet banquet in the Statler-Hilton grand ballroom. Fred Bradley, last year's winner of the District Two's coveted Cosgrove award, presented the 1961 award to Dick Fast of the Fort Worth Association. Everyone agreed the Award Committee couldn't have made a wiser choice.

Then came a surprise award. Someone discovered that it was the wedding anniversary of N.A.P.A. President Russell Stark and Mrs. Stark, both of whom attended the conference. Much to their surprise, they were presented with a remembrance of the occasion.

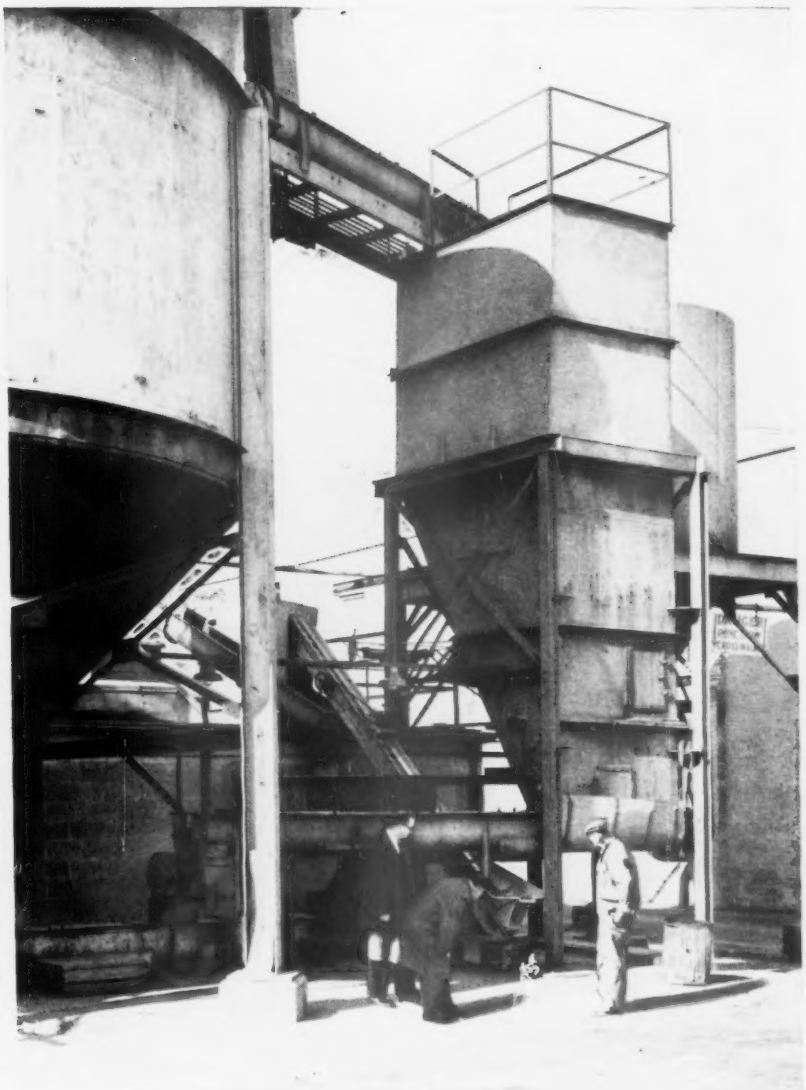
The following day, President Stark addressed the meeting. He pointed out that today's purchasing agent must keep moving forward just to stay even, what with electronic data processing and other technological developments that will help make the purchasing techniques of yesteryear as obsolete as the buggy whip.

Much of the credit for the success of the Southwest conference belongs to General Chairman John Morris and Program Chairman Frank Wodrich and their hard-working helpers.

Jeffrey helps promote distributor-customer teamwork for efficient service



Allen Pingpank, Jeffrey Sales Engineer, (at left) discusses chains and stocking needs with John Battel, Partner, General Chain & Belt Company, New York.



Above, from left to right: Allen Pingpank, John Battel and Edward Moog, Chief Engineer of Farmers Feed Co., check out equipment at the feed processing plant.

Three is not a crowd when it comes to equipment replacement. Farmers Feed Company, Brooklyn, New York, finds that out every time there is a need for fast service on replacement parts. Farmers Feed Company has built a tight, three-way team between itself, General Chain & Belt Company, New York distributor and Jeffrey.

For example, operations at Farmers Feed often call for replacement bucket elevators, spiral and chain conveyors, take-up bearings and sprockets. General Chain & Belt has exactly what this customer needs because close work with Jeffrey in selecting and maintaining stocks made it possible.

Jeffrey engineers work closely with every distributor, custom-tailoring distributor service to match customer needs. Providing well-known Jeffrey quality in all these products is no problem when you have alert, cooperative field-work like this.

To take advantage of this kind of customer-distributor-manufacturer teamwork, just call your own nearby Jeffrey distributor. If his stocks don't already provide for your needs, you can be sure he'll put Jeffrey quality to work for you fast. The Jeffrey Manufacturing Company, 784 North Fourth St., Columbus 16, Ohio.

If it's conveyed, processed or mined, it's a job for Jeffrey.

JEFFREY

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When the giants fall...

"At 6:45 a.m. tomorrow, we'll go to work cutting this stand. We'll load the logs, charge the mill, work the drying yards, load the freight cars and ships. We'll handle this redwood spruce 23 times—in mud, over rough ground, in all kinds of weather.

"When you're in the business of moving materials—whether it's lumber, steel or any other—the equipment makes the difference. That's why we demand fork lifts that will stand up. That's why we buy Clark."

CLARK® EQUIPMENT

Industrial Truck Division
CLARK EQUIPMENT COMPANY
Battle Creek, Michigan



For full details
see your local Clark Dealer,
or Circle 77 on reader service card



THE GREAT BRAND NAME
IN WASHERS FOR 74 YEARS

MILWAUKEE WROT

We do *not* ask Purchasing departments to order *Milwaukee Wrot Washers* just because we've been in business for almost 75 years and are the world's largest producer of washers.

We do *not* suggest that Design engineers specify *Milwaukee Wrot Washers* just because we have over 129,000 sets of washer dies in stock, and it stands to reason specials are standards with us.

But we *do* urge both groups (and Management, wherever concerned) to reflect on the thought that with today's urgent need for economy, avoidance of rejects and better finished products — *even the lowly washer is an important component!*

So, why not specify the brand and buy from the source that *is* biggest *because* it is best?

Milwaukee Wrot Washers are pre-washed, clean, rust-resistant and extremely durable... still the simple, economical answer throughout industry.

P.S. If you don't have our unfancy Washers and Stampings *Catalog 40-B* in your files, write for a copy today.



PURCHASING PERSONNEL . . . Free samples available. Request on your letterhead, mentioning types of washers your company uses most frequently.

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WROUGHT WASHER MFG. CO.

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WORLD'S LARGEST PRODUCER OF WASHERS

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Association News

No. Jersey Celebrates Seventh Anniversary

Seven years ago, the North Jersey Association of Purchasing Agents held its first meeting. Irene Gordon, Wallace & Tiernan Inc., was in the audience as one of the ounding members. During the anniversary meeting recently, Miss Gordon was at the head table to preside as president of the Association she helped to found.

It was fitting that this meeting should see the addition of ten new members to the roster, bringing total membership to 483. The new members are: Hugo Berg, Lafayette Crane & Hoist Co., Inc.; Thomas J. Cousins, Hemminger Co.; Benjamin T. James, Suburban Propane Gas Corp.; Bernard Kagan, Thomas A. Edison Industries; Thomas J. Scanlon, Radio Corp. of America.

Also John Schuster, Bzura Chemical Co.; Richard E. Tillsley, Cooper Alloy Corp.; Tice B. Woodcock, Okonite Co.; Bill Hums, Redm Corp.; and Ben Freiman, Industrial Washing Machine Co.

Principal speaker for the evening was Alois J. Stadeck, prominent psychologist. Stadeck discussed the suggestive powers which each person has within him. "Use these powers," he suggested, "they will be certain to improve your effectiveness as purchasing agents."

D. C. Group Discusses Purchasing Problems

The first meeting of the year at the Purchasing Agents Association of Washington, D. C. was devoted to a panel discussion of "Purchasing Problems."

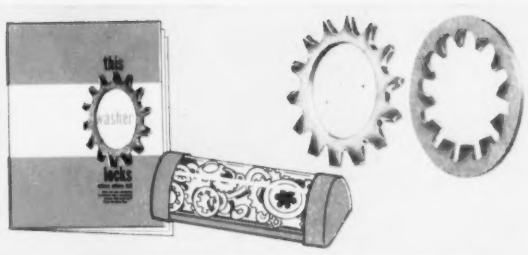
Panel moderator was Dr. Frank Coolsen, professor of marketing at the School of Business Administration of American University.

Members of the panel included: Richard H. Bussard, Washington Gas Light Co.; David S. Haddock, AB&W Transit Co.; Frank W. Hoover, Government Services, Inc.; and A. J. Somerville, Thos. Somerville Co.



DON'T GAMBLE...with your product's reputation

INSIST ON GENUINE SHAKEPROOF® LIVE ACTION LOCK WASHERS!



Customer loyalty is not a matter of *luck!* It's based on your product's *reputation* for top quality, trouble-free performance! A good reputation depends on the quality of each component used in manufacture *and assembly*. Fasteners—lock washers in particular—carry a big part of this responsibility. Washers that don't measure up to the rest of your product can cause real trouble . . . can actually result in brand switching by your customers.

Don't Gamble! Don't settle for a lock washer that's "good enough." Look alikes don't act alike! Genuine Shakeproof Live Action Lock Washers bite on both sides . . . the only lock washers that lock right—stay tight—where others fail.

TEST THE BEST—FREE! Send for the free Shakeproof Live Action Sample Kit. Includes a wide selection of lock washers and the informative "This Washer Locks Where Others Fail" booklet.

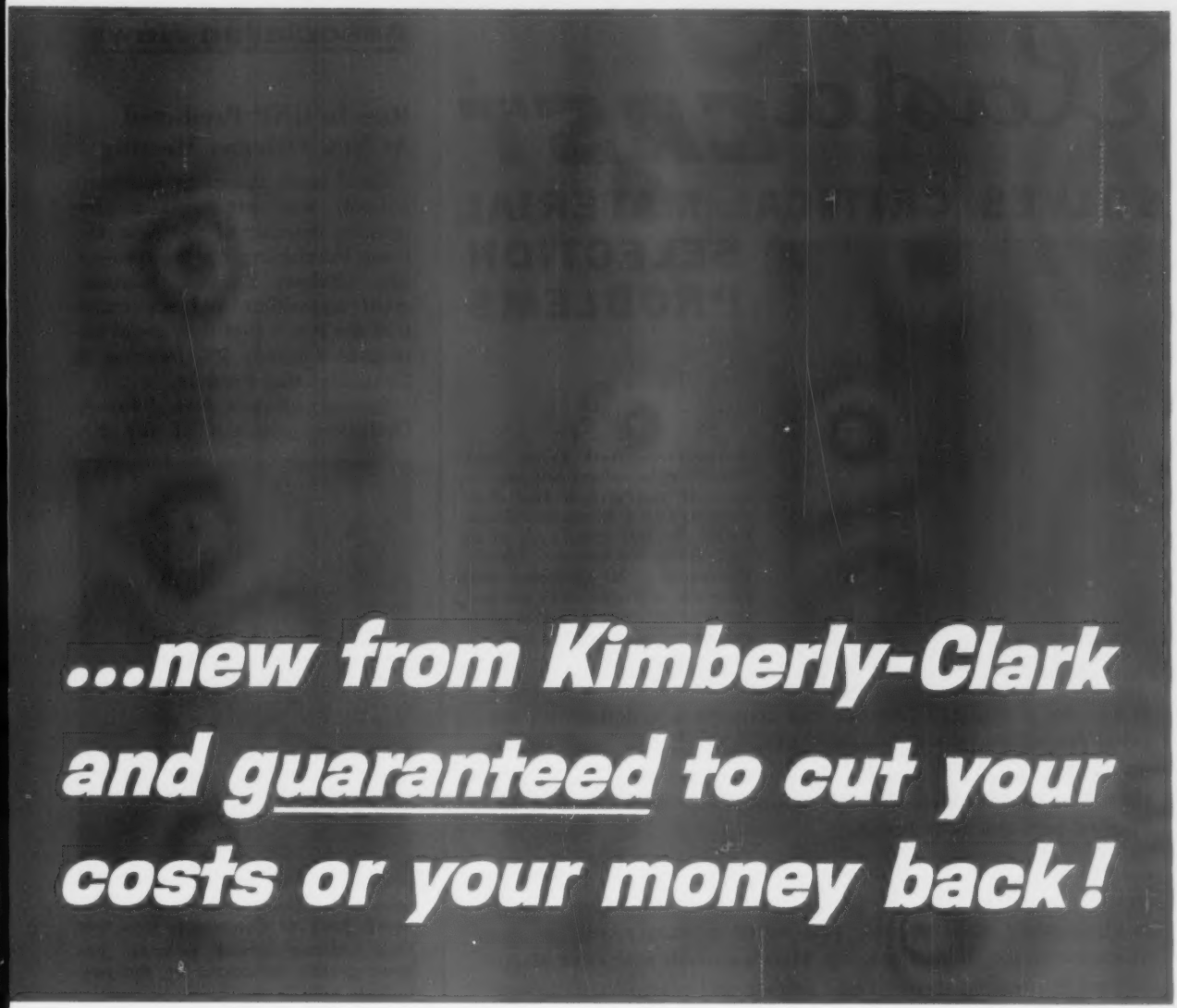
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DISPOSABLE SHOP TOWELS



Your towel costs must come down or your money back!

Kimberly-Clark's 1-month guaranteed cost-cutting plan will prove to you that KIMTOWELS can reduce wiping costs. Here's how the plan works: you order a month's supply of Kimtowels. Use them in your entire plant (or in a single department) just as you would cloth wipers. At the end of one month, if your wiping costs haven't gone down, we will gladly refund the cost of the Kimtowels. Fair enough? Send coupon today.

- Look, feel, perform like cloth!
- Usable—over and over!
- Far more economical than cloth!
- Strong, rugged—wet or dry!

plus—no rental; no collecting; no sorting; no storage; no records; no pilferage!

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At no obligation to me, please rush information on Kimtowels "GUARANTEED COST-CUTTING PLAN."

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Firm.....

Street.....

City.....Zone.....State.....

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ElastaCAST®

SOLVES CRITICAL MATERIAL SELECTION PROBLEMS



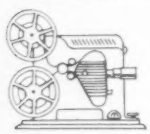
Automotive Ball Joint Seal. *"30,000 miles without ball joint lubrication" resulted from Ford Motor Company's use of oil-resistant ElastaCAST for ball joint seals in its 1961 Fords, Mercurys and Lincoln-Continentals. This application takes advantage of ElastaCAST's abrasion resistance, tear strength, excellent weathering properties and low permanent set.*

If you are planning a product that requires a material with unusual properties, take a look at ElastaCAST. Let us work closely with you, particularly in your early design work; experience has shown us that definite savings in design, production and the finished part generally result.

ElastaCAST is a new liquid polyurethane elastomer possessing an unusual range of mechanical and physical properties — such as outstanding abrasion, tear and ozone resistance, oil and gas resistance and high load-bearing. Here's a whole new sales advantage made possible through our rubber and plastics technology. Call us about your tough or unusual applications.

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Light Drive Rolls *of ElastaCAST assure longer life... higher drive friction.*



Shoe Toplifts *of ElastaCAST outwear nylon, rubber or leather . . . take impact bearing loads up to 7,000 psi.*



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Association News

Rise In GNP Predicted At New Orleans Meeting

Good news about the economic outlook was presented at the opening meeting of the New Orleans Purchasing Agents Association. Robert Elsasser, management consultant and economist, told the P.A.'s that they could anticipate a steady 2% increase in Gross National Product.

Second speaker was John A. Ouilliber, president of the National Bank of Commerce. He discussed "Economic Conditions of the Times." Ouilliber said that the general economy of New Orleans should be helped greatly by the recent Saturn missile project recently awarded to the Michoud plant.



John A. Ouilliber, president of the National Bank of Commerce, says that New Orleans' growth potential has been greatly enhanced by the new bridges built in the area.

The New Orleans banker suggested that purchasing agents would be wise not to buy their inventories too much in advance. He also told the group that he foresaw an increase in loan demand beginning in the fall.

Personal Ethics Vital, Detroit P.A.'s Told

Members of the Purchasing Agents Association of Detroit recently attended a meeting to hear E. L. Anderson, Jr., director of

(*Please turn to page* 168)



"Why new Champion Bond?"

New Champion® Bond was developed through Champion Papers research for one purpose: to offer a combination of printing-typing qualities never before contained in a single bond. It has lived up to expectations so well that we've let it tell its own story throughout the preceding pages of this magazine. Available in white and eight new colors...13, 16 and 20 lb. weights...new Champion Bond is priced and classified as a number four bond. Call in your Champion Papers merchant or your printer for a complete demonstration. Discover how misleading the term "number four bond" can be when it applies to a paper as fine as this.

CHAMPION PAPERS

Knightsbridge/Hamilton, Ohio



This is 20 lb. Champion Bond



MAN SIZE OR PINT SIZE?



● No matter how *large* or how *small* your product is—in fact, no matter *what* it is—INLAND is equipped to find the best way to pack and ship it.

We make this statement based on our experience in building containers for literally thousands of customers and products. There's scarcely a packaging problem we haven't already faced—and solved.

Have problems with breakage? Shipping costs cutting your profits? Have a product requiring entirely new packaging concepts? Does your package have sales appeal? We've designed some of the most ingenious solutions you've ever seen in your life.

We have a world of information on packaging. What would you like to know?

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when's the last time you got a medal?



Quite a while ago, no doubt. They are few and far between. But medal or no, you've taken a step in the right direction when you specify DANCO TUBE, PIPE, STRIP and ROD — precision extrusions in Nylon and other engineering thermoplastics. You can depend on Danco for top quality at the right price and fast delivery from large stocks.

TUBING AND PIPE economical, non-corrosive. For carrying air, cold water, blood, gasoline, and food and milk.

ROD easily machined to close tolerances. For gears, bushings, bearings, many other machine parts.

STRIP washers, gaskets and a wide variety of flat parts can be stamped out of this strip on high speed, automatic equipment.

NYLON-COATED INDUSTRIAL CABLE in a wide variety of sizes for many applications such as belt lacing, drawing board cables, manual controls, artificial limbs, etc.

FOR MOLDED PARTS Danco, the first commercial molder of Nylon parts, offers you experience and engineering assistance in Nylon and other engineering thermoplastics.

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Association News

(*Continued from page* 164)

purchasing at Carborundum Co., discuss the subject of "Ethics".

You can't be a little bit unethical, Mr. Anderson declared. If gifts are not meant to influence he asked, what is the reason for the gift? In dealing with this situation, he said, let's not confuse the picture with moderate entertainment where a buyer is also able to reciprocate with the seller.

The Carborundum executive defined purchasing's true responsibilities as a matter of personal ethics. "The basis of this concept is that sound business ethics are more a result of individual attitude and conduct than influenced by legal considerations."

Expert From India Talks To P.A.'s In Denver

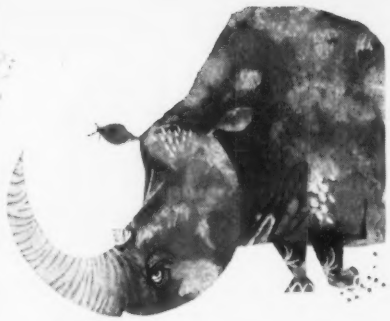
Paul Cheney, Susquehanna-Western, Inc., presided at the opening meeting of the Purchasing Agents Association of Denver. Principal speaker was A. V. Varughese, a university professor from India who is studying international problems at the University of Denver.

Varughese addressed himself to the critical position of the major uncommitted nations such as India. He did much to clarify the thinking of the Denver P.A.'s about the conflicting forces in the world and explained why the various governments maintain their present positions.

Introduce 7 New Members

Ed Olander, Denver Public Schools, was moderator for a discussion which preceded the dinner meeting. Most members joined in as the group talked about negotiated contracts.

Seven new members were introduced at the meeting. They were: Robert Clawson, Silver Steel Co.; Fordyce Coburn, Colorado Fuel & Iron; John Conrad, J. A. McGrew Supply Co.; Eugene Goalstone, Goldberg Brothers; Ken Fleming, McMurty Paint Co.; Hoyt Woodford, Ideal Cement Co.; and Thomas Joy, Wilkerson Corp.



Tayco Hooks

Taylor's Tougher

Safety Superintendents and Material Handling Engineers are getting longer, safer, more maintenance-free service from TM Alloy Sling Chains. Taylor's patented Tayco Hooks are an important reason. Channel-type construction not only protects the hooker's fingers, it also adds extra strength for tougher, safer service than conventional hooks. Get all the facts! Call your distributor or write for Bulletin 14-A.



Pat No. 2,646,306

Chain is our specialty — not our sideline!

Taylor Made CHAIN SINCE 1873

S. G. TAYLOR CHAIN CO., Inc.
General Office: Hammond, Ind.
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ACE

HARD RUBBER ACID PUMPS

THE PUMPS TO SEEK WHEN OTHERS LEAK...

Only a *simple* design can survive with reliability in acids, bleaches, brines and other corrosives. When Ace pumps endure for years in 12% hydrofluoric acid, switched on and off every 30 seconds, 24 hours a day, that's proof! When other Ace pumps, handling 2½ million gallons of brine, outlive 15,000 on-off cycles, that's more proof!

Working surfaces in Ace pumps are *hard rubber*... more resistant to more chemicals, stronger, tougher and more adaptable, simpler in design.

In Ace centrifugal pumps, for instance, impellers are hard rubber *molded right on the shaft*. No vulnerable threads or keys. Bladed backs of impellers keep seals clean, and the by-pass which lubricates the packing is integral with the stuffing box. Rubber-covered shaft with ring seal, or Hastelloy with conventional packing.



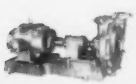
Here are brief details of four Ace best sellers. What you'd really like to see is the *price* . . . *considerably less* than most alloy metal pumps.

Write today. Ask for Pump Manual CE-55.

CHEMICAL EQUIPMENT DEPARTMENT

American Hard Rubber Company

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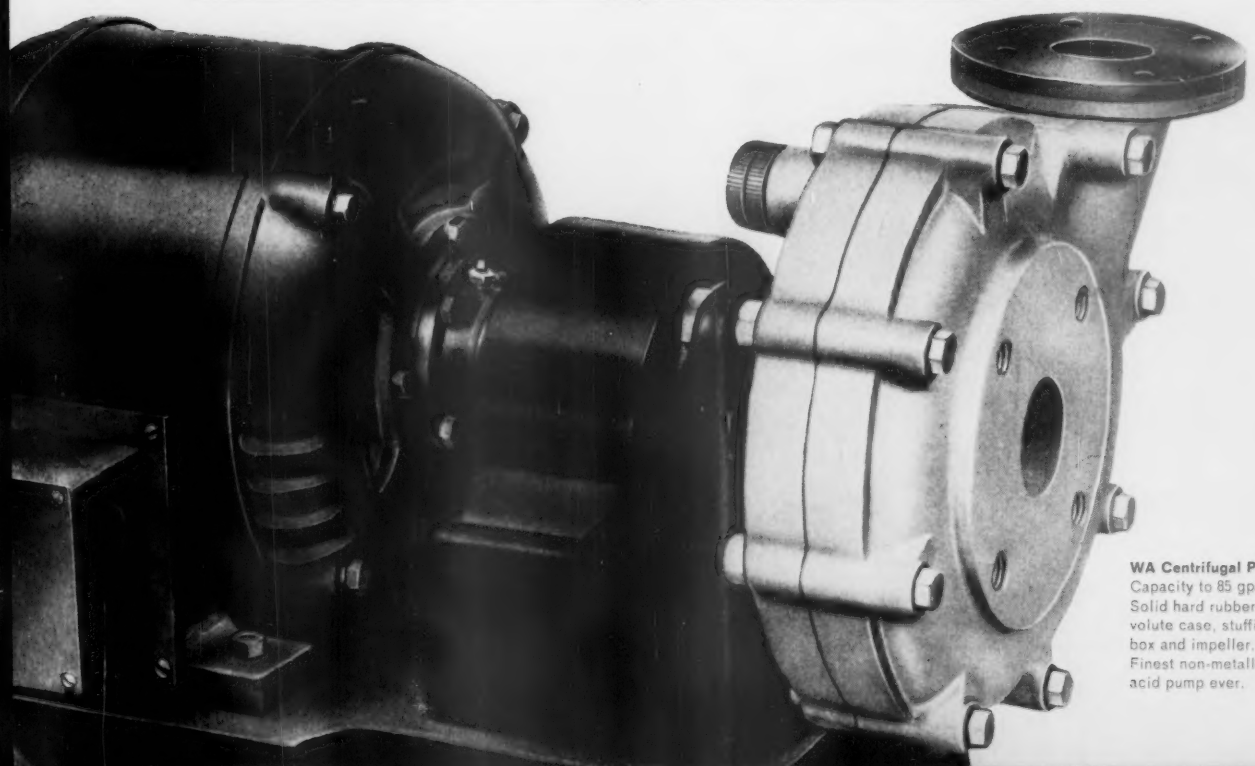
WE Centrifugal Pump: Capacity 350 gpm. Cast iron casing lined with hard rubber. Tough, hard rubber impeller.



Ace Rotary Gear Pump: Low-cost 11 gpm. acid transfer pump. Wear-resistant hard rubber gears and casing. Kel-F bearings.



Ace Jabsco Neoprene Impeller Pump: Handles amazing volume. 15 gpm. at 22 ft. head to 5 gpm. at 72 ft. Hard rubber casing, neoprene impeller. Self priming.



WA Centrifugal Pump: Capacity to 85 gpm. Solid hard rubber volute case, stuffing box and impeller. Finest non-metallic acid pump ever.

Mountaintop Laboratories Centralize Steel Research



Bethlehem's new laboratories occupy 75 acres and employ 450 researchers in five main buildings.

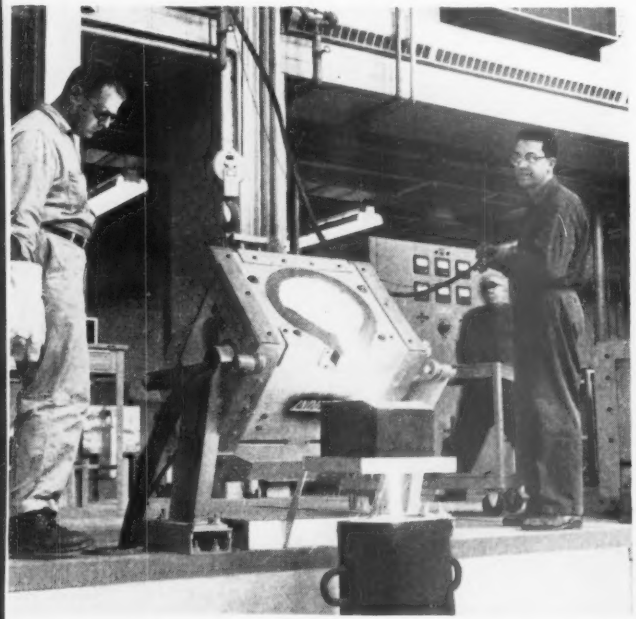
THE $25 million mountaintop Homer Research Laboratories were formally dedicated last month by Bethlehem Steel Company to the constant search for continuing progress in steel technology.

The laboratories, occupying 75 acres on a 1000-acre site in Bethlehem, Pa., consist of five main buildings clustered around a cooling pond. Two additional buildings are currently under construction by the company. At present, 450 research personnel are employed at the laboratories which have 475,000 square feet of floor area.

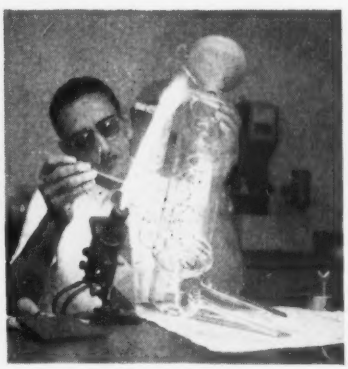
As might be expected, all buildings are framed in structural steel. Most floors are poured on cellular steel decking, interior wall partitions are steel, and windows are set in steel frames.

The laboratories are named for Arthur B. Homer, chairman of Bethlehem. At the dedication ceremonies, Mr. Homer said that he expects the new research com-

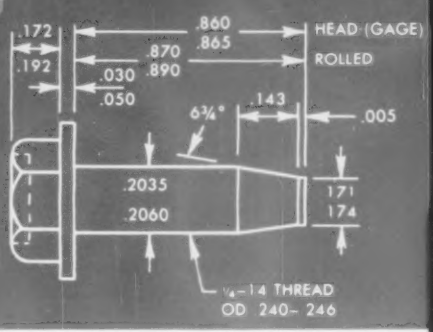
(*Please turn to page* 174)



An experimental melt of 300 pounds of steel is poured at the process metallurgy pilot plant.



A glass-blowing shop at the laboratories makes and repairs a wide variety of glassware needed by the research scientists.



300% UPSET



MIDLAND *Fasteners*

. . . crucial cold heading done with KEYSTONE WIRE

To upset an indented hex washer head sheet metal screw with a thin washer 300% larger than the original wire diameter calls for good tooling and superior quality wire. Such a screw is cold headed on a 2-blow header by Midland Screw Corporation, Chicago, Ill., from Keystone Special Process Wire.

Ed Wick, Customer Service Coordinator, has exceptional praise for Keystone Wire. He says, "In cold heading this sheet metal screw we have had our best success with Keystone C-1018 Special Process Wire. We like to work with this wire. A big factor in its selection is the uniform quality throughout the coil, correct thermal treatment and flowability characteristics—as well as excellent service and dependable deliveries from Keystone Steel & Wire Company."

If you are looking for a high quality wire with delivery you can rely upon, it will pay you to investigate Keystone Special Process Wire.

Keystone Steel & Wire Company, Peoria, Illinois



KEYSTONE

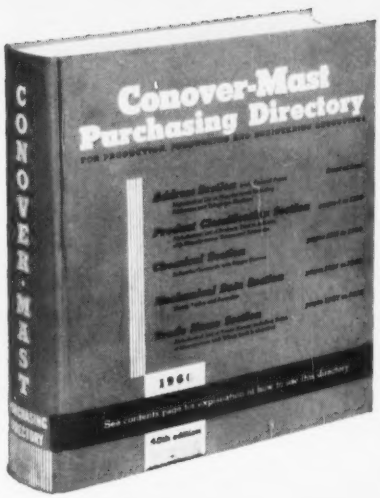
WIRE FOR INDUSTRY
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RELIABLE...
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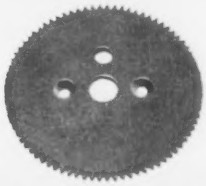
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1 Noiseless aircraft gear provides strength, light weight, close tolerances, and eliminates electric shorts or possibility of leaks, reduces costs. Made of INSUROK® T-827.



2 This piece replaces steel adjusting collars, speeds up press time, provides clearer markings, will NOT rust, saves $8.35 per piece. INSUROK T-615 was used.

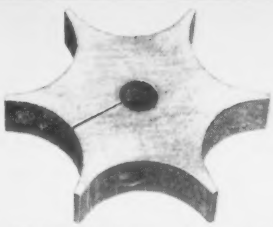


3 Fabricated tube ends duplicating machine problems by resisting developing solutions at less cost than stainless steel or other plastics. INSUROK T-303 and T-643 were used.

TEN CASE HISTORIES SHOW YOU HOW TO LOWER COSTS, SPEED PRODUCTION, IMPROVE PRODUCTS WITH RICHARDSON FABRICATED PARTS



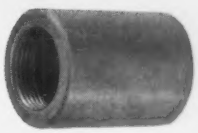
4 Laminated firing pin eliminates cracking during close tolerance machining, cuts production costs $10.00 per thousand, reduces scrap losses. INSUROK T-643 worked perfectly.



5 Substantially lower priced, easier on products, star wheel replaces and outlasts metal or rubber types, acts as safety device. Made from INSUROK T-601.



6 Close tolerance fabricated control plate terminal provides clearer markings, is uniform in quality, saves customers $1200 per year. INSUROK T-814 solved the problem.



7 Safer laminated tube motor brush holder replaces nylon type because of lower moisture absorption, greater strength and insulation properties. INSUROK TR-303 did the job.



8 This road grader pivot bearing stands up where metals fail, is self-lubricating, provides rugged long life, trouble-free service. Made from graphitized INSUROK T-602.



9 Color-coded sign spacers replace metal, reduce original costs by 10%, eliminate corrosion problems, speed assembly. Solved with INSUROK T-301-TR.



10 Plastic air cylinder cup follower saves 40% in costs, eliminates scratches on cylinder walls, weighs less. INSUROK T-640 replaced metal.

For complete details on any of the above examples, circle the number(s) and return this coupon.

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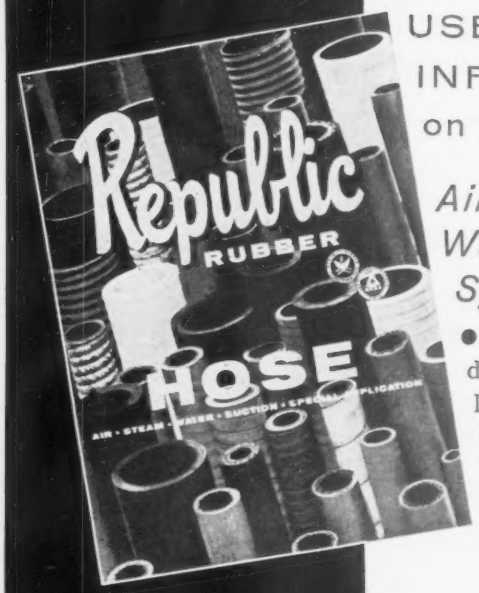
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Send your prints today for quick airmail or phone quotations. Also ask for a *free* copy of "Money-saving tips for designing Short Run Stampings."



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Industry Developments

(*Continued from page* 170)

plex—which consolidates at one center activities which had been scattered throughout the company—to "make a great contribution towards the development of new or better products and processes."

He also used the occasion to speak out on the subject of steel prices and profits. The chairman declared that "Recently a great deal of concern has been expressed about the level of steel prices. It would be encouraging to see evidence of equal concern for profits. Investments like this in research, and investments in new and better production facilities, are the only way in which job security and job opportunities can be created in our society."

The main building is the administration and bench laboratory building. It contains offices for research executives, engineers, and the clerical staff—plus laboratories for five research divisions. This building also has a six-story octagonal tower housing a technical library and a lounge on the top floor.

Another building is occupied by a warehouse on the ground floor and completely-equipped machine shops on the second floor. The 245-foot long roof is spanned by eleven 96-foot long welded steel pipe trusses.

Other buildings include those for process metallurgy, photography, and central heating and refrigeration. Under construction are the electro-mechanical and mechanical engineering buildings.

The laboratories include many unusual types of research facilities, such as six complete spectographic labs, structures testing equipment, and a process metallurgy pilot plant. Activities cover a number of technological fields, including ceramics, physics, corrosion engineering, chemistry, mineralogy, electronics, mechanics, thermodynamics, and nuclear studies.

Bethlehem has set two basic goals for the new facilities: improvement of existing products and processes, and development of new products and processes.



How To Be A Short-Sighted Labeler

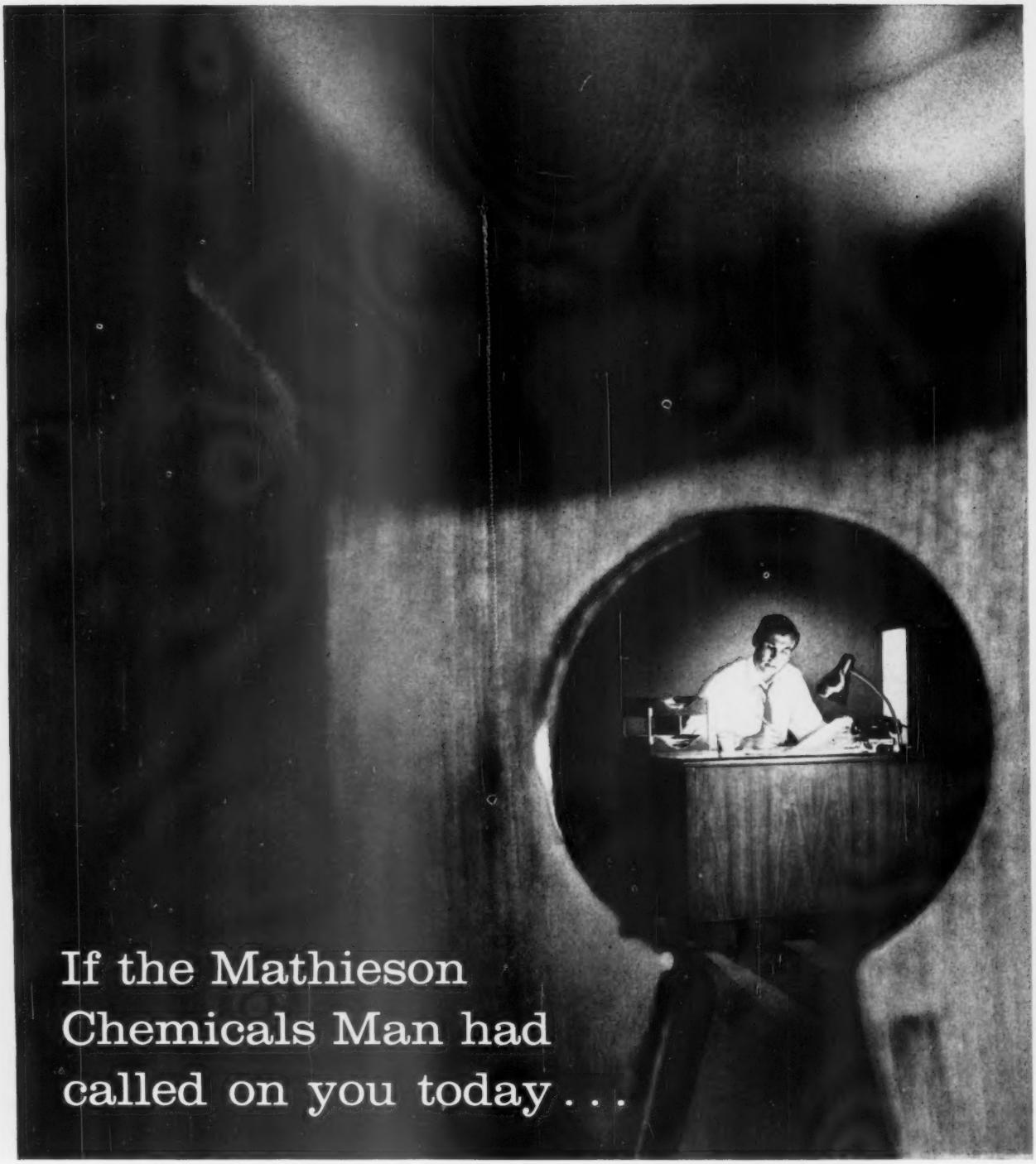
If you would be as short-sighted as the chap with the 20-nothing vision there, keep this rule firmly in mind: AVOID AVERY'S NEW K-6 SUPER-REMOVABLE LABELS. Reasons: 1. Pressure-sensitive labels with K-6 adhesive are the world's easiest to remove, even from the smoothest surfaces—if you used them you'd be missing a good chance to intimidate customers who would otherwise find difficulty in removing the labels from your products. 2. K-6 (an Avery exclusive) leaves no sticky residue on glass, plastic, or shiny metal products to mar the finish—if you used K-6 you'd be losing a swell opportunity to provoke customers who prefer new products to look new. 3. Like all pressure-sensitive products, K-6 labels are easy to handle, stick with a touch. And they're ideal for countless labeling operations—if you used them you'd be throwing away an excellent chance to squander funds on expensive production involving heat, water or solvents.

If, on the other hand, you have a tendency toward FAR-sightedness and need *any* kind of label—removable or permanent—you'll get along fine with Avery . . . the most respected name in pressure-sensitive products. Write for FREE SAMPLES of Avery K-6 labels to: Avery Label Company, 1616 S. California Avenue, Monrovia, California.

Got a Sticky Problem?

AVERY Avery Label Company
A Division of
Avery Adhesive Products, Inc.

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. . . he might be found like this if you called on him tonight. Why? Because unit price alone doesn't sell chemicals. These days when you buy in quantity, you value-analyze your suppliers as to shipping, storage, processing, ready supply, technical service. That's why your Mathieson man works to lower the cost-into-process of your chemicals.

This Mathieson man is a salesman, of course. But his technical knowledge, his marketing know-how, his experience in expediting orders make him an invaluable member of your purchasing team.

Before you place your next order for chemicals, see the man from OLIN MATHIESON, Baltimore 3, Md.

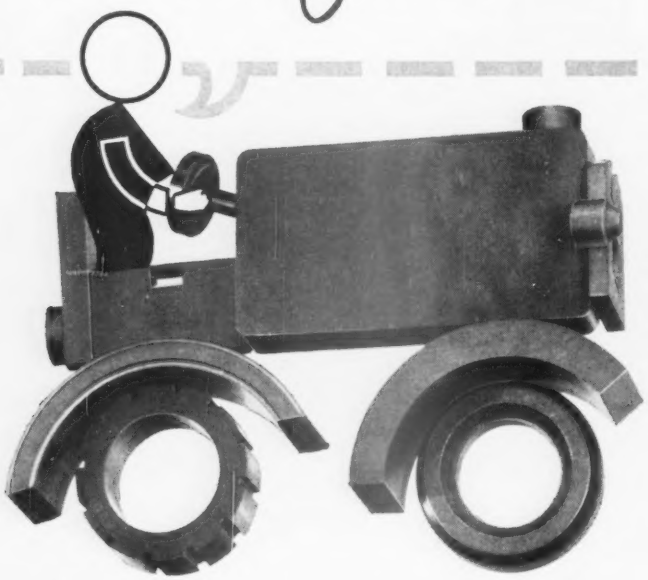


MATHIESON CHEMICALS—Ammonia • Carbon Dioxide • Caustic Soda • Chlorine • Hydrazine and Derivatives • Hypochlorite Products • Methanol • Muriatic Acid • Nitric Acid • Soda Ash • Sodium Bicarbonate • Sodium Chlorate • Sodium Chlorite Products • Sodium Methylate • Sodium Nitrate • Sulfur (Processed) • Sulfuric Acid • Urea • **BLOCKSON CHEMICALS**—Trisodium Phosphate • Trisodium Phosphate Chlorinated • Sodium Tripolyphosphate • Tetrasodium Pyrophosphate • Polyphos (Sodium Hexametaphosphate) • Monosodium Phosphate • Disodium Phosphate • Sodium Acid Pyrophosphate • Tetrapotassium Pyrophosphate • Sulfuric Acid • Hydrofluoric Acid • Phosphoric Acid • Sodium Silicofluoride • Sodium Fluoride • Teox® 120 Surfactant. 1498

CHEMICALS DIVISION Olin

For More Facts Write No. 268 on Information Card—Last Page

If you're headed for a product requiring magnets ...consider CeraMAGNET®



The road leading to a new product may be filled with detours where conventional magnets are concerned. That's where Stackpole Ceramagnet permanent magnets warrant prompt and serious consideration. By providing important characteristics, to extents unobtainable in metallic units, they pave the way to many new and unusual design and engineering approaches.

Ceramagnet's high coercive force permits use without keepers or pole pieces, with many poles on a single flat face, and under other conditions which would quickly demagnetize ordinary units. Moreover, Ceramagnet is chemically inert, electrically non-conductive. Molded from ceramic powders, Ceramagnet permanent magnets can readily be produced economically to practically any size or shape.

For ideas and technical data, write for Ceramagnet Bulletin, Stackpole Carbon Company, St. Marys, Pa.



STACKPOLE CeraMAGNET®

GRAPHITE BEARINGS & SEAL RINGS • ELECTRICAL CONTACTS • ROCKET NOZZLES • VOLTAGE REGULATOR DISCS • PUMP VANES • CHEMICAL ANODES • CERAMIC MAGNETS • WELDING & BRAZING TIPS • FERRITE CORES • FIXED & VARIABLE COMPOSITION RESISTORS • SLIDE & SNAP SWITCHES • AND MANY OTHER CARBON, GRAPHITE AND ELECTRONIC PRODUCTS

For More Facts Write No. 269 on Information Card—Last Page

News

P.A.'s Urged to Enter Copper Design Contest

Purchasing agents have been urged to participate in the fourth annual Copper and Brass Achievement Awards Competition. The contest is sponsored by the Copper & Brass Research Association to honor outstanding new developments in the domestic use or application of copper metals.

Entries in the industrial category can be new or redesigned products, original designs or concepts, marketing or promotion programs, productions or manufacturing processes, or contributions to science and research that significantly involve use of copper metals.

First prize awards of $500 and bronze trophies will be given for the best entry. Anyone in the United States is eligible to enter the competition except members of the copper industry.

Nominations may be made through March 31, 1962. Entry forms are available from the Copper & Brass Research Association, 420 Lexington Ave., New York 17, N.Y.

Printing Buyers Put Main Stress on Speed

The service printing buyers value most is speed. Next in importance; delivery, service and creative assistance. This is one of the findings of a recent survey of 292 printing buyers conducted by a class in marketing research at the University of Kentucky.

Forty-nine percent of the buyers interviewed reported they buy their printing exclusively from local printers. Sixty percent of this group said they relied on local sources because they can get their printing faster. Convenience was mentioned by 28%; close, personal contact by 27%.

Fifty-one percent of all those surveyed buy some or all of their printing from out-of-town suppliers or printers located in large printing centers. The main attrac-

(*Please turn to page* 182)







*Trade Mark

OPENING

How fast can you swing your arm?

That's how fast you can open a Bemis Multiwall with Bemi-Strip closure. Just grab the red tab and pull. The bag opens quickly, easily.

A tight seal . . . yet a fast, economical opening that leaves the bag intact.

No fumbling for thread ends. No cutting. No stuck closure seams. And no paper shreds or thread clippings, so . . . assured cleanliness.

Ask your Bemis man for complete information.

BEMIS BRO BAG CO.

where packaging ideas are born

General Offices—408 Pine St., Dept. P, St. Louis 2 • Sales Offices in Principal Cities

For More Facts Write No. 270 on Information Card—Last Page

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East Chicago
Gary
De Kalb
Ottawa
Streator
Reddick
Cardiff
Kempton
Cullom
Charlotte
Sandwich
Shabbona
Shabbona Grove
Rollo
Waterman
Hinckley
Big Rock
Little Rock
Somonauk
Leland
Millington
Baker
Newark
Sycamore
Genoa
Kirkland
Henrietta
Esmond
Clare
Cortland
Malta
Monroe Center
Rainbow Gardens
Belvidere
Garden Prairie
Marengo
Harvard
Lake Bluff
Great Lakes Naval Training Center
Lake Forest
Highland Park
Deerfield
Dundee
Barrington
Crystal Lake
Ivanhoe
Libertyville
Wauconda
Grayslake
Round Lake
Antioch
Lake Villa
Gurnee
Waukegan
North Chicago
Zion
Beach Park
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Kenosha
Pleasant Prairie
Somers
Paddock Lake
Twin Lakes
Salem
Wilmot
Burlington
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Whitewater
Delavan
Darien
Sharon
Clinton
Janesville
Beloit
Rockford
Roscoe
South Beloit
Machesney Park
Loves Park
Cherry Valley
Harlem
Rockton
Durand
Pecatonica
Winnebago
Pecatonica
Freeport
Lena
Stockton
Galena
Dakota
Scales Mound
Elizabeth
Warren
Apple River
Hanover
Nora
Stockton
Lanark
Shannon
Polo
Mount Morris
Oregon
Byron
Rochelle
Kirkland
Hinckley
Big Rock
Little Rock
Somonauk
Leland
Millington
Baker
Newark
Sycamore
Genoa
Kirkland
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Esmond
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Malta
Monroe Center
Rainbow Gardens
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Marengo
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Great Lakes Naval Training Center
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Winnebago
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Freeport
Lena
Stockton
Galena
Dakota
Scales Mound
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Rochelle

67 years of service to the Industrial Middle West



INLAND STEEL IS HERE

Here, in 1893, Inland Steel was born. And here, *in the world's number 1 metal-working region,* Inland has unceasingly served. Poets have described Chicago and its neighboring industrial cities as a tough-muscled giant—knowing no *limit to its creativity. From this* area—Inland's "home" territory—girdling Lake Michigan like a crescent from the northern boundary of Illinois up through lower Michigan, come a cornucopia *of products—radio and TV* sets, home appliances, office furniture and *equipment, heavy-duty ma*chinery, materials handling equipment, contractor's products, drums, cans, automotive parts, *electrical and railroad* equipment—almost every *product made of steel.*

And with the growth of this area, Inland has steadfastly kept pace—is today the only major steel *producer headquartering* in the area—one of the leading completely integrated steel companies in America—owning its own mines, quarries, ore carrier fleet—its rate of production expansion is greater than the rate of total steel production expansion for the entire nation.

Here, in Chicago, is a shining skyscraper of steel and glass—Inland's home office—hub of an enterprise now reaching out over the midwestern states from Canada to the Gulf of Mexico. Big, it *has grown—big enough to meet every need of the* users of steel. Yet the men at Inland, for Inland is men, are fully aware of the basis of that growth —the warm personal relationships with every *Inland customer. Because Inland is here*—has been here for 67 years—Inland *knows the area*—knows its technical requirements, its manufacturing methods, its people. No "in-and-outer," *Inland has tried always to be* of service with dependable delivery, *metallurgical counsel and* quality steels.

Here, also, the aim of Inland men is to be truly a part of the *community—buying equipment and* supplies within the area—lending a hand where they can in educational and civic enterprises—doing their utmost to provide an ever-growing service to midwestern industry.

INLAND STEEL COMPANY

30 West Monroe Street Chicago 3, Illinois

Sales Offices: Chicago • Davenport • Detroit • Houston • Indianapolis Kansas City • Milwaukee • New York • St. Louis • St. Paul

Other Members of the Inland Family: Joseph T. Ryerson & Son, Inc. • Inland Steel Products Company • Inland Steel Container Company* • Inland Lime & Stone Company*

**Division*

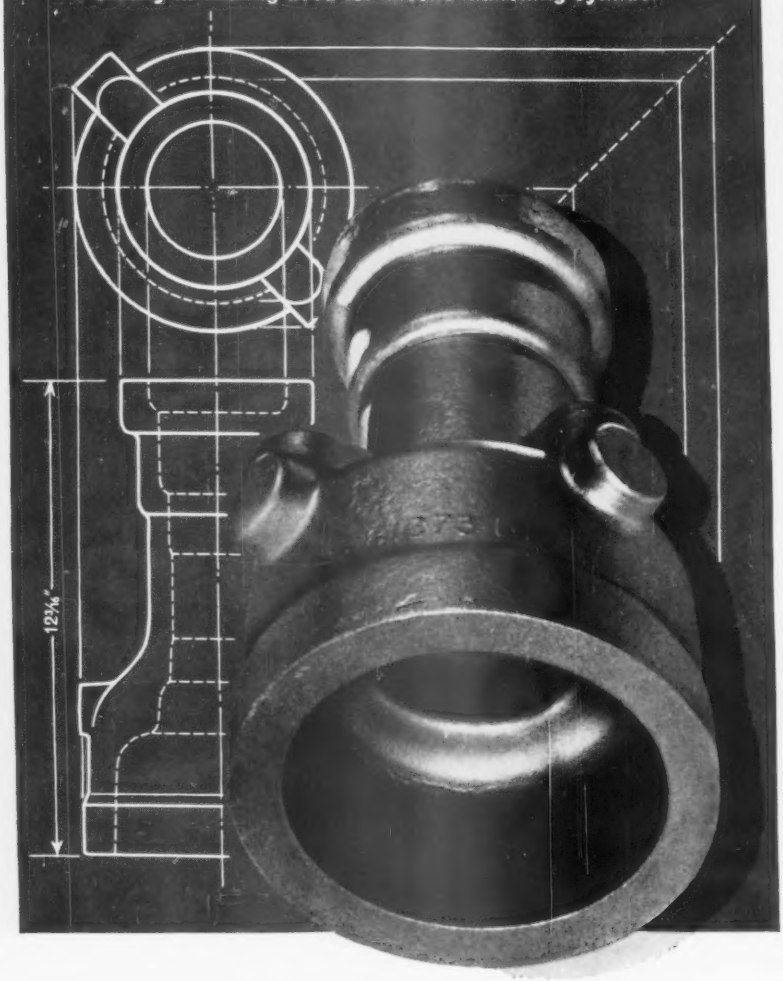
INLAND

One of a series depicting market areas served by Inland · Art by Bob Keys

For More Facts Write No. 291 on Information Card—Last Page

PROBLEM:

Porosity in casting used for missile launching cylinder



SOLUTION:

The problem of porosity was eliminated by the AmForge technical staff, who perfected a method to forge the part on an upsetter. The forged part did away with rejects, yet actually was produced at less cost than the casting it replaced. Performance of the part was greatly improved and the missile contractor realized definite savings.

If you have a similar problem part, consult AmForge. Write for our new brochure and the name of your AmForge Sales Engineer.

Remember: *your problems . . . our challenge!*

AM FORGE

a division of American Brake Shoe Company, 1220 West 119th Street, Chicago 43, Illinois. Two plants in Chicago, one in Azusa, California.

WHEN IT'S A VITAL PART, DESIGN IT TO BE FORGED

For More Facts Write No. 271 on Information Card—Last Page

News

(*Continued from page* 178)

tion of the printing centers, say the buyers, is specialized service. This advantage was mentioned by 52% of the buyers, while 42% mentioned price.

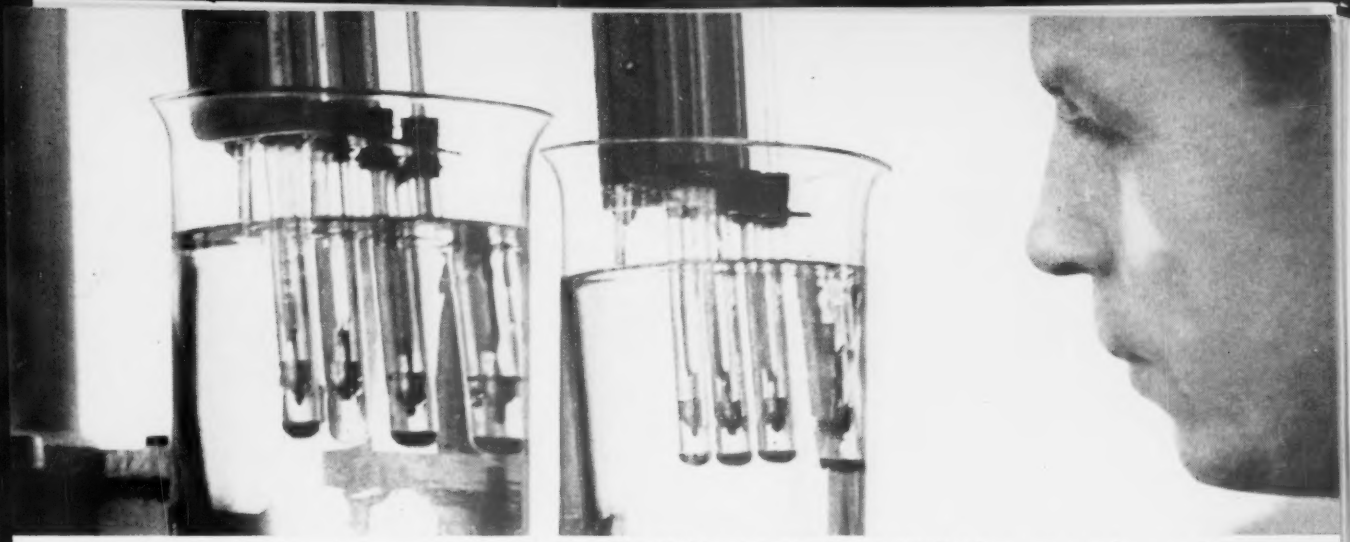
The study showed that the average printing buyer deals with four suppliers. Thirty percent buy from two; 15% from three; and 13% from six. Asked what they thought was the most important qualification of a good printing salesman, one-third said knowledge of the printing business and the printing firm's capabilities. The most desirable personal characteristic stressed was dependability.

Half the buyers surveyed said they find printers are a definite help in solving problems. Of this group 45% said printers were most helpful with problems involving printed forms. Twenty percent reported that printers were an aid in designing other types of printed items such as checks, labels, wrappers, letterheads, posters, etc. Aid with mats was mentioned by 18%.

Another question in the survey was: "When you hear the term 'quality' used in connection with printed materials, what does it mean to you?" Surprisingly, the meaning associated with quality by 52% of the buyers is good quality paper.

The University of Kentucky study was made under the supervision of Dr. Merrill De Voe, professor of marketing.





Dropping point test shows how greases react to heat. Beaker fluid has been heated to 390°F. All greases tested except Darina (second tube from left) have passed from solid to liquid state.

BULLETIN:

Shell reveals the remarkable new component in Darina Grease that helps it save up to 35% on grease and labor costs

Darina® Grease is made with Microgel*, the new thickening agent developed by Shell Research.

Darina lubricates effectively at temperatures 100° hotter than most conventional soap base greases can withstand.

Read how this new multi-purpose industrial grease can help solve your lubricating problems and even save you up to 35% on grease and labor costs.

THERE IS no soap in Darina Grease. No soap to melt away—wash away—or dissolve away.

Instead of soap, Darina uses Microgel—a grease component developed by Shell Research.

What Microgel does

Because of Microgel, Darina has no melting point. It won't run out of gears or bearings.

Compared with most conventional soap-base greases, Darina provides significantly greater protection under adverse service conditions.

Mix water into Darina and the grease does not soften. It shrugs off water—won't emulsify.

Resists heat

Darina will withstand operating temperatures 100° hotter than most conventional multi-purpose greases. It cuts leakage and reduces the need for special high-temperature greases.

Also, Darina resists slumping, thus forming a more effective seal against foreign matter.

Saves money

Shell Darina can reduce maintenance expenses while it protects your machinery. Savings of up to 35% on grease and labor are quite possible.

In some cases lubrication intervals have been extended to double what they were before. Less grease is consumed and less time consumed applying it.

For details, see your Shell Representative. Or write: Shell Oil Company, 50 West 50th Street, New York 20, New York.

*Registered Trademark

SHELL

A BULLETIN FROM SHELL
—where 1,997 scientists are helping to provide better products for industry

How to cut your disposable-tooling costs by 30 per cent at no sacrifice in quality or output. (Answer is on the next page.)



With the new Carb-O-Lock toolholder-insert combination. The single most important advance in the whole history of metal-cutting.

Save 30 per cent when you buy it. Save 40 per cent when you use it.

These are minimums. Users of the Carboloy Carb-O-Lock toolholder-insert combination have reported savings many times higher. Why?

Simple. The Carb-O-Lock design is simple. Using a cam-action locking principle, the Carb-O-Lock has just three parts (not including insert). Insert changing and indexing is a breeze; parts inventories can be held to absolute minimums. Streamlined design lets you bring the toolholder closer to your work. And less overhang means less vibration, less insert chipping and breaking.

Plus: the Carb-O-Lock gives you proven performance. A major diesel engine manufacturer discovered Carb-O-Lock allowed nearly triple the feed, eliminating two machines. A locomotive and car equipment company found Carb-O-Lock's simple, rugged design reduced time for tool changes and permitted maximum horsepower utilization.*

Carb-O-Lock inserts are available now in Grade 883 for machining cast iron, as well as many operations on the following materials: high-temperature alloys, type 300 stainless steel, brass, bronze.

So start your savings program today. Phone your Authorized Carboloy Distributor and order your Carb-O-Lock toolholder-insert combination. Save 30 per cent. And more.

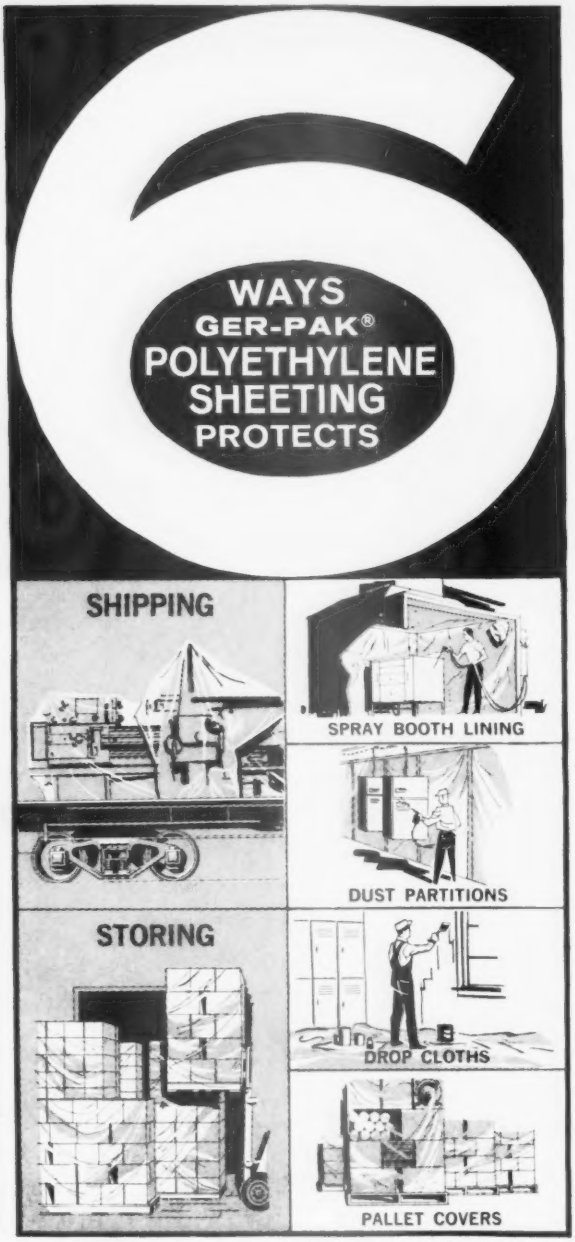
Metallurgical Products Department of General Electric Company, 11143 E. 8 Mile Road, Detroit 32, Michigan.

**Case histories available on request*

CARBOLOY
CEMENTED CARBIDES
METALLURGICAL PRODUCTS DEPARTMENT
GENERAL ELECTRIC

CARBOLOY CEMENTED CARBIDE BLANKS AND DISPOSABLE INSERTS • BRAZED TOOLS • TOOLHOLDERS • CARBIDE DIES • WEAR PARTS

For More Facts Write No. 273 on Information Card—Last Page



Get new ideas on low-cost protection with GER-PAK waterproof polyethylene sheeting. For shipping, storage, work in process, products and equipment—bulk or small—you're fully protected against weather, dust, dirt and water. For many daily in-plant needs, heavy duty GER-PAK sheeting is a **time and money saver.** Comes in seamless sheeting up to 40 feet wide or tubing up to 20 ft. lay-flat width (standard thicknesses are 1-mil (.001 in.) to 10-mil (.010 in.). And for positive sealing, use new super-adhesive GER-PAK Polyethylene MIRACLE TAPE®, specifically designed for use with GER-PAK sheeting.

WRITE TODAY FOR SAMPLES AND LITERATURE.

GERING
PLASTICS

division of Studebaker-Packard Corp., Kenilworth, N. J.

OTHER USES FOR GER-PAK POLYETHYLENE SHEETING
bags and liners for drums, cartons, crates, bins • in-plant water-proofing • equipment covers • wrapping tools • machinery covers • temporary shipping platform covers

For More Facts Write No. 274 on Information Card—Last Page

What Purchasing Means To Europe

(*Continued from page 78*)

Others are selecting university graduates and giving them intensive courses in the commercial aspects of buying.

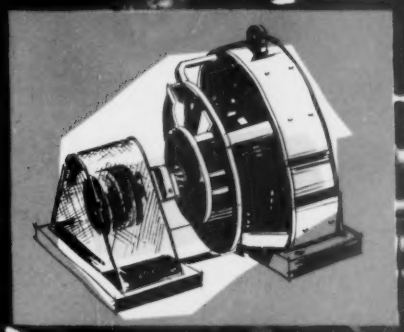
Play Up Education's Role

Meanwhile, outstanding purchasing executives are moving into top management positions in their organizations. (Advancement apparently hasn't dulled their desire to improve their purchasing knowledge; one of the most active and well-informed participants at a seminar I conducted in London was the chief purchasing officer and a director of the British division of one of the world's largest food companies.)

• Professional development efforts of purchasing executives have begun to receive active support from management. There are active purchasing associations in almost every country in Free Europe. Their own education programs and seminars and meetings sponsored by outside organizations are heavily attended. The further development of the European Federation of Purchasing (which now embraces seven associations in Belgium, France, Germany, Holland, Norway, Sweden and the United Kingdom) is expected to result in even more and broader educational programs involving purchasing executives from several countries.

Future Looks Promising

To an American observer who has studied the long, hard upward pull of purchasing in this country, European purchasing seems to be really jumping. It still has a long way to go and it may get a few bumps along with the jumps. If it maintains its current appetite for education and professional development; if it continues to get more recognition by better performance; if it doesn't let up on its intense drive for greater competition; European purchasing will play an outstanding role in the great economic revolution which is now moving across Europe and just beginning to affect the United States. ► END



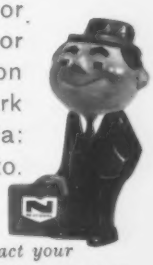
REYNOLDS METALS COMPANY KEEPS ALUMINUM PRODUCTION ROLLING WITH AN ASSIST FROM NATIONAL BRUSHES

TRADE-MARK

Reduction operations at the Corpus Christi Plant of Reynolds Metals Company produce a steady flow of basic aluminum on a round-the-clock schedule. Every component in the power plant must provide exacting performance and rugged reliability to meet production schedules.

"National" Brushes—used in the power generating section—are small but vital components that contribute to uninterrupted d.c. power supply for the aluminum pot lines. For many years these brushes have provided good commutation and life with minimum commutator maintenance.

To National Carbon Company, improved electrical operations mean a positive carbon brush service program. For details, call your "National" Brush Man or write National Carbon Company, Division of Union Carbide Corporation, 270 Park Avenue, New York 17, N. Y. In Canada: Union Carbide Canada Limited, Toronto.



Contact your "National" Brush Man

UNION CARBIDE

"National" and "Union Carbide" are registered trade-marks for products of

NATIONAL CARBON COMPANY

CONSOL COAL'S ELECTRIC SHOVELS MOVE TREMENDOUS TONNAGES WITH AN ASSIST FROM NATIONAL BRUSHES

TRADE-MARK



Huge electric shovels take one tremendous bite after another at the eastern Ohio mines of the Hanna Coal Company, a division of Consolidation Coal Company. The swinging peak loads are extremely demanding on the shovels' electrical system–there is no room here for short cuts on quality.

"National" Brushes–small but vital components on such equipment–offer proved commutation and life under these swinging peak load conditions. A real contribution to sustained production with minimum maintenance.

National Carbon Company offers a positive service program to assist in solving any brush problems encountered today in all types of mining operations. To realize this assistance, just call your "National" Brush Man or write National Carbon Company, Division of Union Carbide Corporation, 270 Park Avenue, New York 17, New York. In Canada: Union Carbide Canada Limited, Toronto.

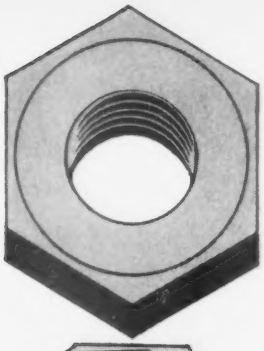


Contact your "National" Brush Man

UNION CARBIDE

"National" and "Union Carbide" are registered trade-marks for products of

NATIONAL CARBON COMPANY



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"Take care of the Purchasing Agent"! Screw & Bolt's bold new look **Imagineering** does just that! ■ Unexcelled quality and dependability of product comes first. But, when we can back it up by meeting all the other requirements on your order, **Imagineering** performs a real trouble-free service for you. ■ Send for our booklet "Imagineering," and when you need threaded fasteners or parts, call Screw & Bolt!

VMA 9557 P

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OF AMERICA • P.O. BOX 1708, PITTSBURGH 30, PA.
Plants: Pittsburgh, Pa. Gary, Ind. Southington, Conn. Norristown, Pa. • Warehouses: Portland, Ore. Denver, Colo. Atlanta, Ga.

Imagineering . . . for greater fastener progress

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You can save a lot of phone calls, wires, letters, memos if you come to JOLIET for washers



Joliet's High Speed Presses Annually Produce the Industry's greatest Volume of Flat Washers

SINCE 1914
a single source for every
washer need, standard or special, any quantity, any size, any metal:

SPECIAL WASHERS
U.S. STANDARD WASHERS
S.A.E. WASHERS
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RIVETING (BURR) WASHERS
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ALUMINUM, BRASS AND COPPER WASHERS
HI-TENSILE STRUCTURAL WASHERS
MALLEABLE ROUND WASHERS
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MACHINERY BUSHINGS
BELLEVILLE TYPE WASHERS
AN 960 FLAT WASHERS
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EXPANSION PLUGS

Write for complete catalog

JOLIET
WROUGHT WASHER COMPANY
Joliet, Illinois

Joliet Phones:
725-4233

Chicago Phones:
Bishop 2-1925 & 2-2693

Does It Pay to Ship by Air Freight Forwarder?

(*Continued from page 88*)

tion head, Traffic, the Arma Division of American Bosch Arma Corporation, Garden City, New York, likes the twenty-four hour pickup and delivery feature of air freight forwarder service. Baxter gets next-morning delivery by air of a major item from a Bay City, Michigan supplier whose production department shuts down at 7 p.m. If shipped by surface, an item that is ready for shipment after 4 p.m. wouldn't even be picked up until the following afternoon.

Baxter is also enthusiastic about the good loss and damage experience he has had with air freight forwarder service. Many of his shipments are delicate scientific instruments. He feels air freight forwarder ground personnel have done an excellent job in holding damage to a minimum.

Air freight forwarder rates are higher than air freight rates in most cases. The forwarders do not pretend to offer a low cost transportation service. They provide extras in service, and extras cost money. Still, a growing list of customers bear witness to the fact that the extra transportation dollars spent for air freight forwarder service must be justified by the savings resulting in other areas of operation. ► END

DON'T MISS THE COMPREHENSIVE REPORT ON

RECIPROCITY

IN THE NEXT ISSUE OF

PURCHASING MAGAZINE



Pack extra performance into your miniature transformers *at no extra cost* with Magnetic Metals' new mite-size transformer core laminations. Use these carefully engineered laminations where you need high specific resistivity and low hysteresis loss, particularly where you require low core loss at high frequencies. They let you miniaturize your designs even further without sacrificing performance.

Supplied only by Magnetic Metals, these new small laminations are made of "Supermu 40"* which provides the highest permeability commercially available. Advanced manufacturing techniques now bring this premium line of laminations to you at no extra cost.

Write today for more information on our entire line of small transformer core laminations. Our engineers are ready to help you select, from the most comprehensive line of laminations in the industry, the best grade of material for the exact results you want.

MAGNETIC METALS

Hayes Avenue at 21st Street, Camden 1, New Jersey
853 Production Place, Newport Beach, California
transformer laminations • motor laminations • tape-wound cores
powdered molybdenum permalloy cores • electromagnetic shields

**79% nickel-iron molybdenum alloy*

For More Facts Write No. 278 on Information Card—Last Page

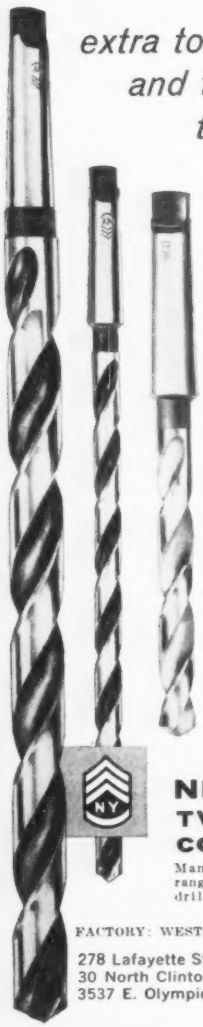


TAKE IT FROM THE DRILL SARGE

NEW YORK TWIST DRILL
manufactures
TAPER SHANK DRILLS



extra tough and true too!



All regular series to 3½" O.D. available for immediate delivery —Specials made up to 1⅛" O.D.

New York Taper Shank Drills save you 25% on your twist drill bill — as do all the drills in our extensive line. If you wish further information, one of our sales engineers will be glad to call on you.

NEW YORK TWIST DRILL COMPANY, INC.

Manufacturers of a complete range of standard and special drills in all popular sizes, lengths and types

FACTORY: WESTBURY, L. I., NEW YORK

278 Lafayette Street, New York 12, N.Y.
30 North Clinton Street, Chicago 6, Ill.
3537 E. Olympic Blvd., Los Angeles 23

Recent Decisions in Purchasing Law

(*Continued from page* 83)

collect and was met with a counterclaim for $8,607.37, alleged by the purchaser to have been spent by him for repairs. In its determination of the controversy, the Maryland court refused to consider the statement printed on the back of the instruction manual a warranty.

Does Not Bind Purchaser

"We find it difficult to see how the printed warranty on the back of each manual can control in the instant case," it said. "It was never executed by anyone, was not intended to be executed and contained no description of the goods sold.

"Even if we assume, without deciding, that the distributor was the agent of the manufacturer, mere delivery of a printed and unexecuted form after the sale had been consummated, would not bind the purchaser. In the instant case there was no reference to any warranty in the conditional sales contract and there is no testimony to show any written order or contract other than the note and conditional sale agreement signed by the purchaser."

Sensabaugh v. Morgan Brothers Farm Supply, Inc., 165 Atl. 2d 914, Maryland, Dec. 13, 1960

Patent License Does Not Give Right To Fix Prices

As soon as the Tinnerman Products Co. received a patent covering sheet metal fasteners, it brought suit for infringement. The defense, however, contended that the patent owner had no case because he had entered into licensing agreements which fixed prices at which the licensee could sell the device.

One such agreement made with the Mount Clemens Metal Products Co., contained the clause, "Tinnerman shall have the right to fix minimum prices at which fasteners licensed hereunder may be sold by Mount Clemens and Mount Clemens shall not sell fas-

(*Please turn to page* 196)



SOURCES OF SUPPLY

Suppliers and sub-contractors in the Northern Plains can be pinpointed quickly by the Facilities Register, a unique electronic index of production facilities. Whether yours is a problem of finding new suppliers, contracting for idle machine time, shortening lines of supply, or obtaining better quality and service:

ASK THE MAN FROM THE NORTHERN PLAINS



NORTHERN NATURAL GAS COMPANY
SERVING THE NORTHERN PLAINS ☐ GENERAL OFFICES: OMAHA, NEBRASKA
Write No 279 on Information Card-Last Page



CAN YOU TELL WHERE IT IS?

Only 1 of the three has hidden value!

They might look the same on the outside, but it's what is inside that counts!

This is especially true of Safety Cans—check the 7 Protectoseal Features. When you're ready to specify or buy, compare them with any other safety can and you'll see for yourself the difference and value you're buying in Protectoseal Products.

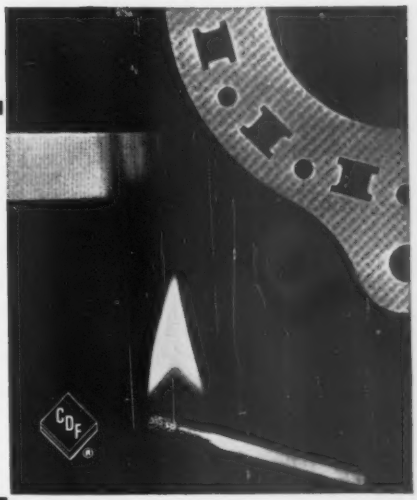


1. Leakproof Construction.
2. Shock-Rim Bottom
3. Double Wall Flame Arresters
4. Mechanically Joined Fill Spout
5. Leakproof Spout Seal
6. Quick-Acting Dispensing Valve
7. Shock Guard Carrying Handle

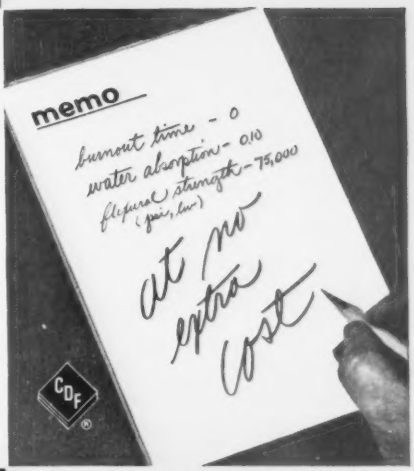
Write for catalog and additional information. 18

THE PROTECTOSEAL COMPANY
1908 S. Western Avenue • Chicago 8, Illinois
Write No 280 on Information Card-Last Page

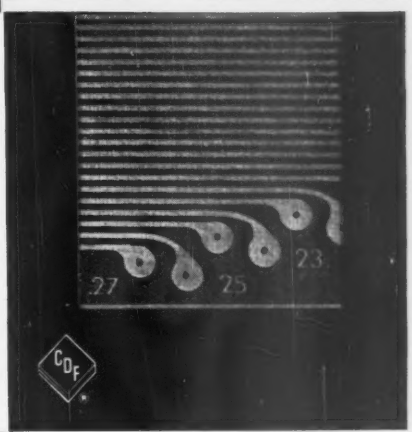
New Copper-Clad *Reliability*



In March, 1961, CDF Grade 614, glass-epoxy laminate, was announced . . . and met with almost overnight acceptance. Particular electronics and electrical manufacturers wasted no time in specifying this premium performance material with zero burnout and minimum "haloing."

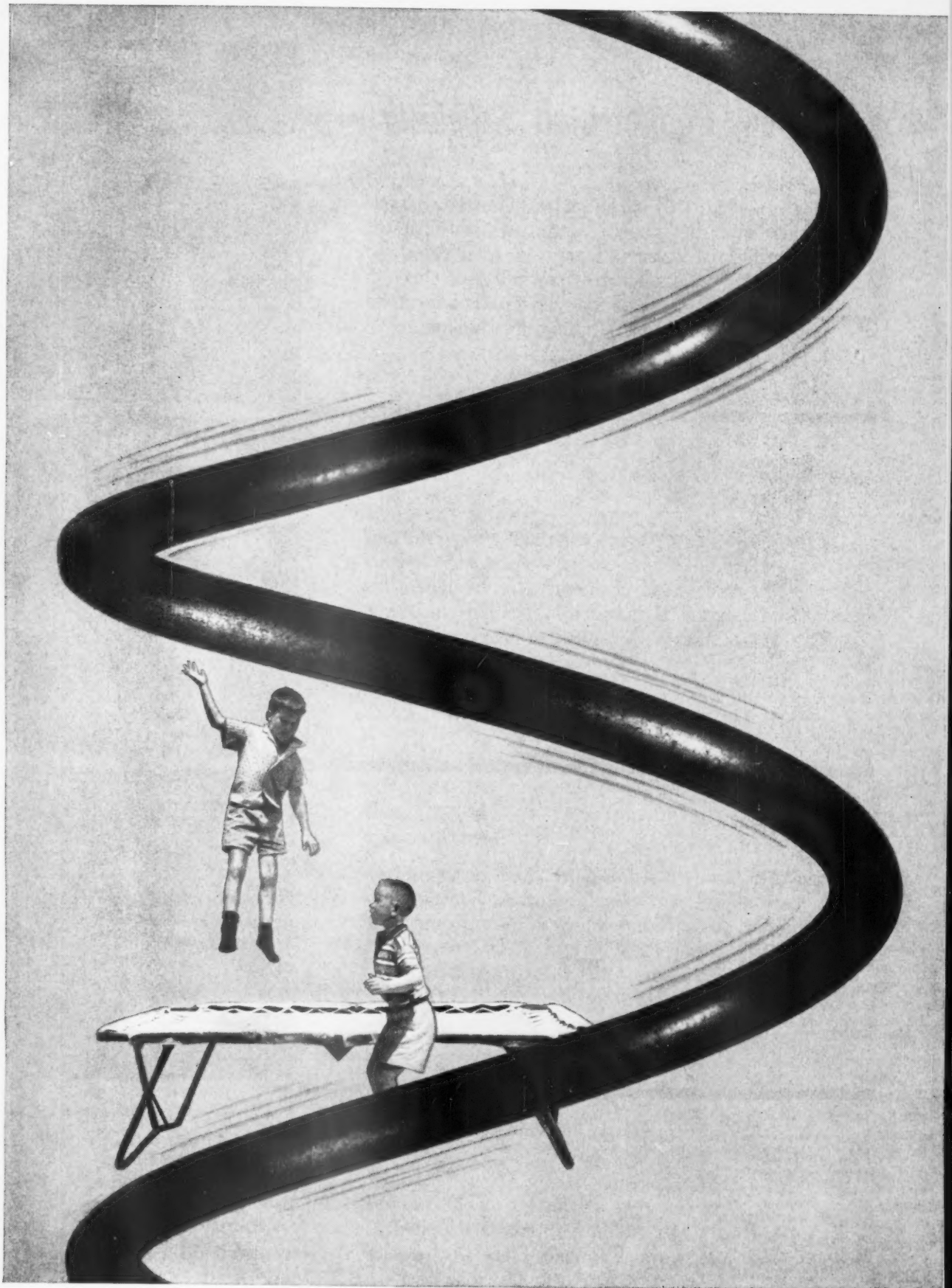


By June, 1961, CDF Grade 614 had become the new standard of comparison for applications in critical ground and air-borne circuitry. Designers like its specifications, production men like the way it handles, management likes its reasonable price.



Now, CDF Grade 614 Copper-Clad is setting a new pace among particular producers of printed circuits . . . offering a new high in reliability for high packaging densities . . . and offering researchers a new tool in the investigation of molecular and submicro-circuitry.

You can take advantage of 614 Copper-Clad's unique features right now . . . in research, development or production operations. Continental-Diamond Fibre Corporation, Newark, Delaware. A Subsidiary of the Budd Company.



BOUNCE BOUNCE BOUNCE

...with CF&I Oil Tempered Wire

Trampoline springs lead a hard life. They work while others play, and no matter how much punishment they absorb, they've got to keep coming back for more. Which is one of the many reasons for forming this and other types of hard-working springs from CF&I Oil Tempered Wire. This tough, premium product has the high fatigue resistance and long life that keep spring performance *up*... the easy-working qualities that keep production costs *down*.

CF&I Oil Tempered Wire is available with Black Satin Finish that serves as a lubricant during coiling and crimping operations and prevents "flake-off." Because it virtually eliminates "stop-and-go" operations, Black Satin cuts machine downtime and production costs. This wire is available in continuous unwelded lengths weighing up to 600 lbs. Straightened and cut lengths from 6″ can also be supplied.

Oil Tempered Wire is only one of the many types produced by CF&I (a partial list is shown below). They are "packaged for your production" in special packages to increase the efficiency and economy of your operation. For complete details, contact your nearby CF&I sales office today.

8474

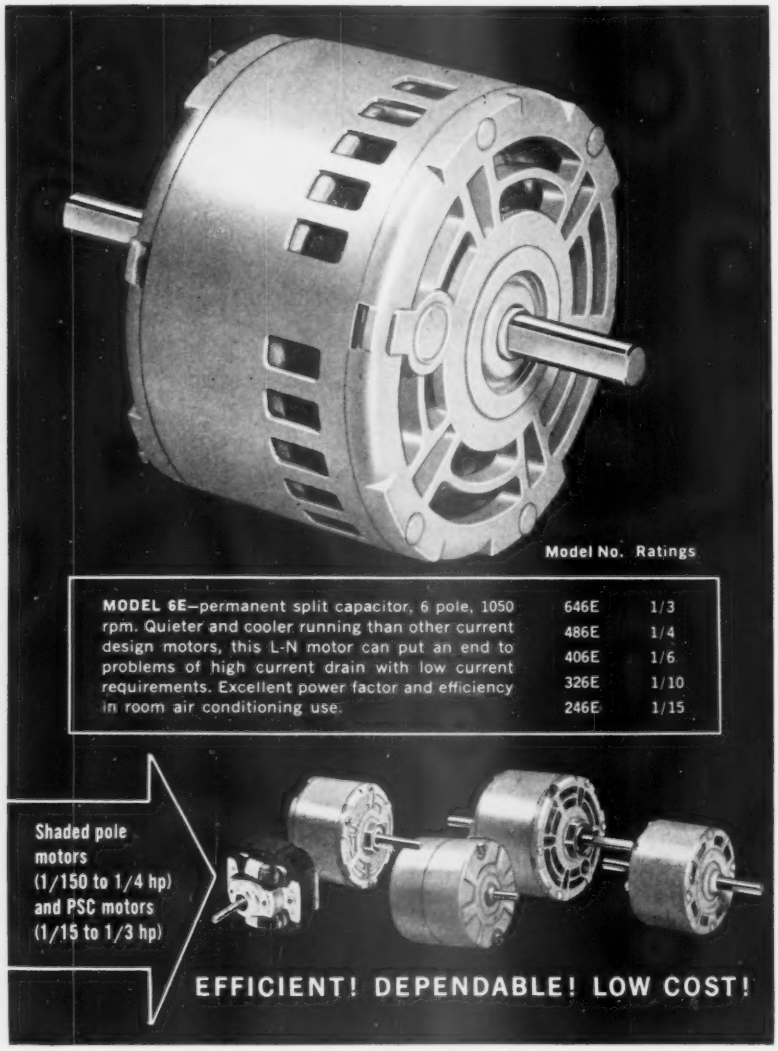
Steel ... your assurance of American-made quality

The Colorado Fuel and Iron Corporation
Denver • Oakland • New York
Sales Offices in Key Cities

CF&I STEEL MADE IN U.S.A.

A partial list of wires produced by CF&I: ACSR Core • bee • bookbinder • brush • chain • concrete reinforcing tie • die spring • flat, low and high carbon • glass netting • hose, reinforcement • lock spring • mattress • picture cord • screen • square, high carbon • stone • weaving

For More Facts Write No. 282 on Information Card—Last Page



SPECIFY LEECE-NEVILLE MOTORS

to upgrade quality in air conditioners, refrigeration, pumps, fans, heating units

Leece-Neville offers you a complete line of shaded pole and permanent split capacitor A.C. motors and fractional D.C. motors —with horsepower ratings from 1/150 to 1/3 hp. All L-N motors are capable of meeting U.L. or C.S.A. application tests. Select a basic unit modified to your specification, or a special motor (custom engineered) to meet your requirements. Modern facilities assure top quality and delivery to your schedules. For complete information, write The Leece-Neville Company, Department P-11, Georgia Division, Gainesville, Georgia.



D. C. MOTORS – Leece-Neville custom engineers more than 300 new D.C. Motors every year for car, home and industry. For details, write D.C. Motor Division, Cleveland 3, Ohio.

QUALITY ELECTRICAL EQUIPMENT
Leece-Neville
SINCE 1909

For More Facts Write No. 283 on Information Card—Last Page

Recent Decisions in Purchasing Law

(*Continued from page* 192)

teners licensed hereunder at prices lower than those established by Tinnerman. Tinnerman or its other licensees of fasteners licensed hereunder, shall not sell fasteners licensed hereunder at prices lower than those fixed by it as minimum selling prices for Mount Clemens."

Violates Antitrust Laws

The patent owner had made a similar agreement with the Illinois Tool Works.

The court held that contracts fixing sale prices as they did, forfeited for the patent owner the right to protection against infringement of his patents. It stated:

"We think that the patent laws were not intended to empower a patentee to grant a plurality of licenses, each containing provisions fixing the prices at which the licensee might sell the product and that, if a plurality of licenses are granted, such provisions therein are prohibited by the antitrust laws.

"It seems to me that if the patentee grants more than one license containing price-fixing provisions, such licenses constitute a violation of the antitrust laws and a misuse of the patent which renders the patent unenforceable by the patentee."

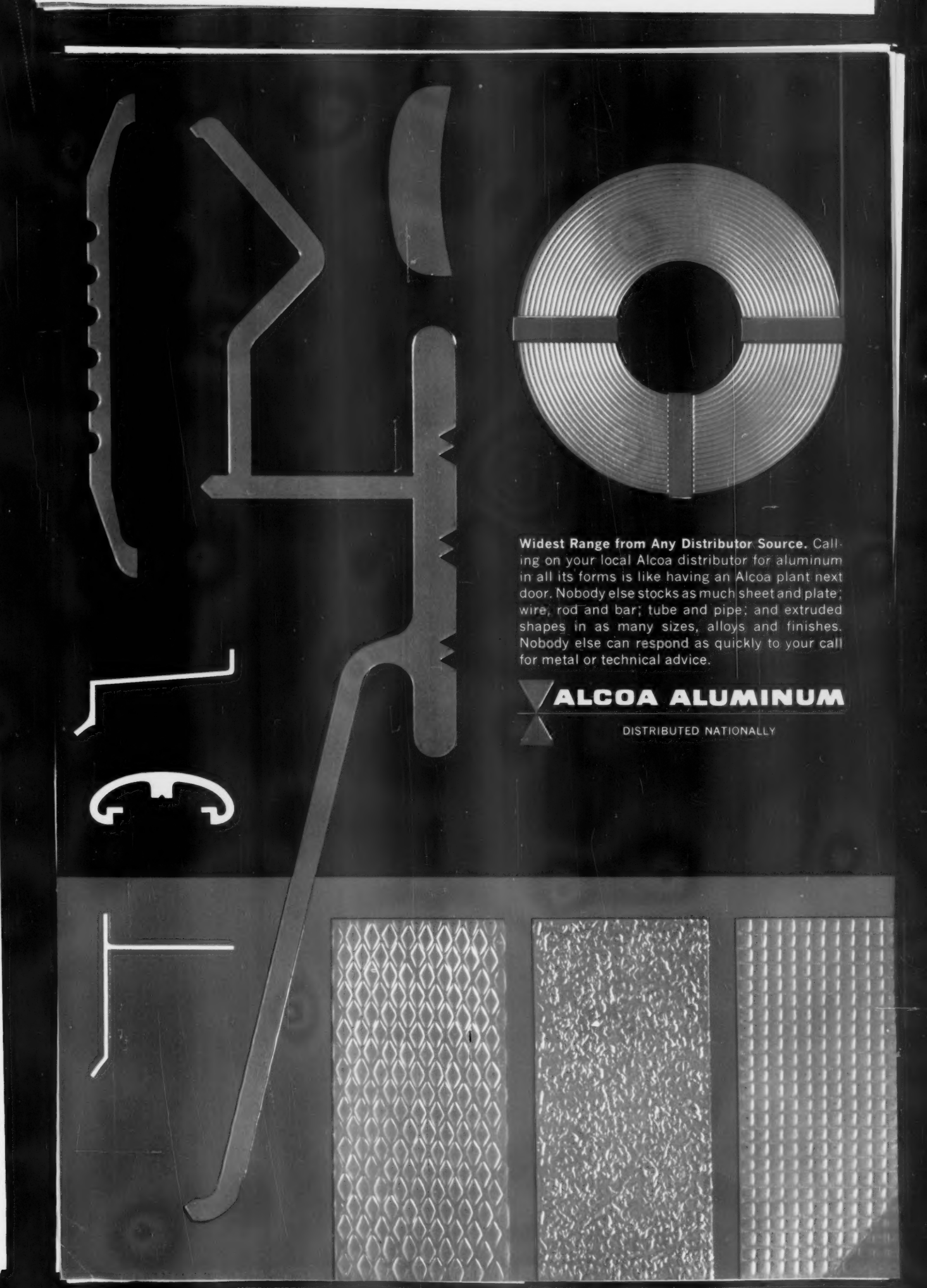
Tinnerman Products, Inc. v. Geo. K. Garrett Co., 185 F.S. 151, Pa., June 27, 1960

Courts Recognize Second Meaning of Trade Marks

The designations "17-4 PH" and "17-7 PH" are well known to Armco Steel Corp. customers, so when the U.S. Commissioner of Patents refused to allow the company to register the numbers as trade marks, it went to the courts and sued to compel the Patent Office to grant its petition.

Since 1949 Armco steel sheets had been labeled with these marks. All catalogues, brochures, and advertising used them to designate the company's product.

(*Please turn to page* 200)



Widest Range from Any Distributor Source. Calling on your local Alcoa distributor for aluminum in all its forms is like having an Alcoa plant next door. Nobody else stocks as much sheet and plate; wire, rod and bar; tube and pipe; and extruded shapes in as many sizes, alloys and finishes. Nobody else can respond as quickly to your call for metal or technical advice.

ALCOA ALUMINUM

DISTRIBUTED NATIONALLY



ALABAMA
Birmingham 5
Hinkle Supply Company, Inc.
(Fairfax 2-4541)
The J. M. Tull Metal & Supply Co., Inc.
(Fairfax 3-1612)

ARIZONA
Phoenix
Ducommun Metals & Supply Co.
(Bridge 5-4471)
Pacific Metals Company, Ltd.
(Alpine 8-7821)

CALIFORNIA
Berkeley 10
Ducommun Metals & Supply Co.
(Thornwall 1-1820)
Los Angeles 59
Benjamin Metals Company
(Rod & Bar) (Nevada 6-0611)
Los Angeles 54
Ducommun Metals & Supply Co.
(Ludlow 8-0161)
Los Angeles 22
Pacific Metals Company, Ltd.
(Raymond 3-5431)
Los Angeles 22
Tubesales (Tube & Pipe)
(Raymond 3-7781)
San Diego
Ducommun Metals & Supply Co.
(Gridley 7-3141)
San Diego 1
Pacific Metals Company, Ltd.
(Belmont 4-3253)
San Francisco 7
Pacific Metals Company, Ltd.
(Underhill 3-5600)

COLORADO
Denver 16
Marsh Steel & Aluminum Co.
(Keystone 4-1241)
Denver 16
Metal Goods Corporation
(Dudley 8-4141)

CONNECTICUT
Milford
Edgcomb Steel of New England, Inc.
(Trinity 4-1631)
Windsor
Whitehead Metals, Inc.
(Murdock 8-4921)

FLORIDA
Jacksonville 5
The J. M. Tull Metal & Supply Co., Inc.
(Evergreen 7-5561)
Miami
The J. M. Tull Metal & Supply Co., Inc.
(Oxford 6-0150)
Tampa 10
The J. M. Tull Metal & Supply Co., Inc.
(3-6741)

GEORGIA
Atlanta 2
The J. M. Tull Metal & Supply Co., Inc.
(Jackson 5-3871)

HAWAII
Honolulu 14
Aluminum Products Hawaii, Ltd.
(94-861)

IDAHO
Boise
Pacific Metal Company (3-6468)

ILLINOIS
Chicago 80
Central Steel and Wire Company
(Republic 7-3000)
Chicago 80
The Cotey Steel Company
(Bishop 2-3000)
Chicago 23
Steel Sales Corporation
(Bishop 2-7700)

INDIANA
Indianapolis 18
Steel Sales Co. of Indiana, Inc.
(Liberty 6-1535)

KANSAS
Wichita
Marsh Steel & Aluminum Co.
(Whitehall 2-3231)

KENTUCKY
Louisville 3
Williams and Company, Incorporated
(Jackson 5-7781)

LOUISIANA
New Orleans 12
Metal Goods Corporation
(Jackson 2-7373)

MARYLAND
Baltimore 7
Whitehead Metals, Inc.
(Windsor 4-2000)

MASSACHUSETTS
Boston 19
Eastern Metal Mill Products Co.
(Highlands 2-5900)
Cambridge 39
Whitehead Metals, Inc.
(Trowbridge 6-4680)

MICHIGAN
Detroit 12
Central Steel and Wire Company
(Twinbrook 2-3200)
Detroit (Hazel Park)
Meier Brass & Aluminum Co.
(Jordan 6-3902)
Detroit 10
Steel Sales Co. of Michigan
(Tyler 6-3000)

MINNESOTA
Minneapolis 13
Steel Sales Co. of Minnesota
(Sterling 1-4893)

MISSOURI
North Kansas City 16
Marsh Steel & Aluminum Co.
(Grand 1-3505)
North Kansas City 16
Metal Goods Corporation
(Grand 1-3516)
St. Louis 14
Metal Goods Corporation
(Harrison 7-1234)
St. Louis 10
Steel Sales Co. of Missouri, Inc.
(Prospect 1-5255)

NEW HAMPSHIRE
Nashua
Edgcomb Steel of New England, Inc.
(Tuxedo 3-7731)

NEW JERSEY
Elizabeth
Adam Metal Supply of New Jersey
(Flanders 1-2550)
Englewood
Tubesales (Tube & Pipe)
(Lowell 7-4400)
Harrison
Whitehead Metals, Inc.
(Humbolt 5-5900)
Hillside 5
Miller Steel and Aluminum
Division of Robert Campbell Co., Inc.
(Waverly 6-6000)

NEW YORK
Buffalo 5
Brace-Mueller-Huntley, Inc.
(TR 7-8700)
Buffalo 7
Whitehead Metals, Inc.
(TR 6-3100)
New York (Long Island City 1)
Adam Metal Supply
(Stillwell 6-7737)
New York (Brooklyn)
Strahs Aluminum Company, Inc.
(Browning 2-7000)
New York 14
Whitehead Metals, Inc.
(Watkins 4-1500)
Rochester 5
Adam Metal Supply of Rochester
(Locust 2-4260)
Rochester 1
Brace-Mueller-Huntley, Inc.
(Congress 6-6550)
Rochester 10
Whitehead Metals, Inc.
(Butler 8-2141)
Syracuse 1
Brace-Mueller-Huntley, Inc.
(Howard 3-3341)
Syracuse 1
Whitehead Metals, Inc.
(Howard 3-6241)

NORTH CAROLINA
Charlotte 5
Edgcomb Steel Company
(Franklin 3-2351)
Greensboro
Edgcomb Steel Company
(Broadway 5-8421)

OHIO
Cincinnati 14
Central Steel and Wire Company
(Avon 1-2230)
Cincinnati 37
Williams and Company, Incorporated
(Valley 1-5555)
Cleveland 28
A. M. Castle & Co.
(Axminster 2-7600)
Cleveland 14
Williams and Company, Incorporated
(Utah 1-5000)
Columbus 12
Williams and Company, Incorporated
(294-1623)
Toledo 12
Williams and Company, Incorporated
(Greenwood 5-8861)

OKLAHOMA
Tulsa 13
Metal Goods Corporation
(Temple 6-2561)

OREGON
Portland 9
Pacific Metal Company
(Capitol 7-0693)

PENNSYLVANIA
Philadelphia 34
Edgcomb Steel Company
(Garfield 3-6300)
Philadelphia 32
Metal Supply Company
(Center 6-0220)
Philadelphia 40
Whitehead Metals, Inc.
(Baldwin 9-2323)
Pittsburgh 33
Williams and Company, Incorporated
(Cedar 1-8600)
York
Edgcomb Steel Company (47-1931)

RHODE ISLAND
Slatersville
Edgcomb Steel of New England, Inc.
(Poplar 7-0900)

SOUTH CAROLINA
Greenville
The J. M. Tull Metal & Supply Co., Inc.
(Cedar 3-8366)

TENNESSEE
Memphis 6
Metal Goods Corporation
(Whitehall 8-3407)

TEXAS
Dallas
McCormick Steel Company
(CH 7-3104)
Dallas 35
Metal Goods Corporation
(Fleetwood 1-3271)
Houston 1
McCormick Steel Company
(OR 2-6671)
Houston 1
Metal Goods Corporation
(Riverside 7-1110)

UTAH
Salt Lake City 1
Pacific Metals Company, Ltd.
939 South 6th West
(Davis 8-2222)

WASHINGTON
Seattle 8
Ducommun Metals & Supply Co.
(Parkway 5-1500)
Seattle 4
Pacific Metal Company (Main 2-6925)
Spokane 4
Pacific Metal Company
(Keystone 5-3681)

WISCONSIN
Milwaukee 1
Central Steel and Wire Company
(Humboldt 1-5000)
Milwaukee 9
Steel Sales Co. of Wisconsin
(Hilltop 2-2020)

Call The Aluminum Man . . . his stock's the most complete!

Your Alcoa distributor sales representative—*The Aluminum Man*—maintains a warehouse bulging with sheet and plate; tube and pipe; extruded shapes; wire, rod and bar. His stock represents the widest range of aluminum products available from any distributor source. He can arrange for them to be slit, sawed or sheared to your specifications—furnish technical advice you may need on alloy selection and fabrication techniques. He's your fastest supply line for aluminum in any form when you need it. Your nearest Alcoa distributor is listed on this page, so give him a call . . . soon. Aluminum Company of America, 846-Y Alcoa Building, Pittsburgh 19, Pa.

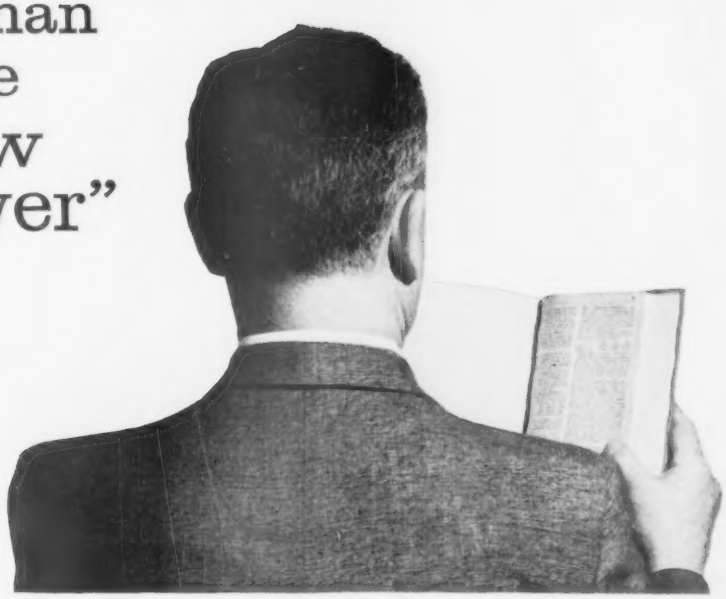
ALCOA ALUMINUM

DISTRIBUTED NATIONALLY

Call *The Aluminum Man* . . . he's your Alcoa distributor sales representative



The man with the "know power"



Because your purchasing activities have such an important effect on the overall profits of your company, you need sound facts to support each of your buying decisions. That is why the Industrial Tape Division of Minnesota Mining and Manufacturing Company takes special pains to see that you get the kind of information you need. Your 3M Representative or "SCOTCH" BRAND Tape Distributor can furnish full facts concerning tape applications. He can help you suggest cost-saving ways to use tapes in production, packaging, and maintenance. He has the backing of extensive 3M laboratory "know-how" to help you predict shelf life of tapes and gain the advantage of larger quantity discounts. And he can help you be sure the correct tape is selected to fit any of the diverse applications throughout your offices, factories, or warehouses. Call your 3M Representative or "SCOTCH" BRAND Tape Distributor today for the information you need. Or, write 3M Company, 900 Bush Avenue, St. Paul 6, Minnesota, Dept. IBJ-111.

...can confidently choose

REG. U.S. PAT. OFF.
SCOTCH BRAND industrial tapes



MINNESOTA MINING AND MANUFACTURING COMPANY
...WHERE RESEARCH IS THE KEY TO TOMORROW

3M COMPANY

"SCOTCH" IS A REGISTERED TRADEMARK OF 3M CO., ST. PAUL 6, MINN.

For More Facts Write No. 285 on Information Card—Last Page



GRIPCO GUS
expands the gang...

Have you met hard workin' GRIPCO GUS? His job is finding the best nut for *your* application—and that naturally includes developing new ones from time to time. His latest brainstorm is a particularly good example of this continuous service. More important, it's a particularly good *nut*. Take a look:

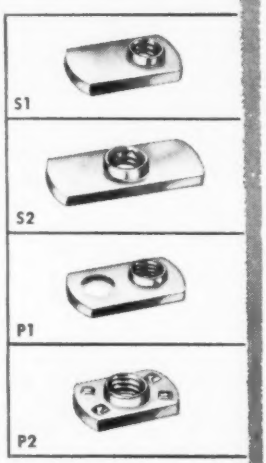
The New GRIPCO* TAB WELD NUT

S1 (Spotweld Type) Single weld area for applications where space is a factor.

S2 (Spotweld Type) Double weld area for maximum strength.

P1 (Pilot Projection Type) Single weld projection.

P2 (Pilot Projection Type) Four weld projections, eliminating rocking during welding operation and to give a maximum weld.



All offering:

- Self-locating pilots for fast, accurate positioning—no locating devices needed.
- Convenient location of pilots and projections —no retapping required.
- Fast, clean welding—minimum current, short time-cycle.
- High welding quality, low carbon steel construction.
- Optional self-locking feature—the exclusive GRIPCO Toplock.
- Complete range of sizes available for immediate delivery from stock.

Get the full details on the new GRIPCO Tab Weld Nuts—including data on welding set-ups and complete price information—from *your* GRIPCO GUS. You'll find him listed in the Yellow Pages under "Bolts & Nuts" as the local GRIPCO Representative.

*GRIPCO is a registered trademark of Grip Nut Co.

GRIP NUT COMPANY — *Subsidiary of Heli-Coil Corporation, Danbury, Conn.*

1011 Maple Ave. • South Whitley, Ind. • Phone: South Whitley 723-5111

3136

Recent Decisions in Purchasing Law

(*Continued from page* 196)

The federal court, therefore, granted the steel company a right to register the symbols. It said:

"A person may not adopt for this purpose some word that has been previously known and that has a definite significance of its own. The manner in which this doctrine is sometimes phrased is that no one may appropriate a descriptive or geographical term as a trade-mark. One may concoct and employ only an arbitrary conglomeration of letters, newly coined and previously nonexistent and unknown.

Everyone Can Use Dictionary

"The reason for this principle is that it would be intolerable to permit anyone to monopolize and exclude others from using existing words having well understood meanings and connotations. Words listed in the dictionary are in public domain. Everyone is entitled to use them.

"If as a result of continuous use the trade-mark in the course of time becomes associated in the mind of the consuming public with the owner's good, he acquires a property right in it in connection with his business. At times it is said, perhaps incorrectly, that under these circumstances the term acquires a secondary meaning."

Armco Steel Corp. v. Watson, 188 F.S. 554, Nov. 14, 1960 ► END



"Well, enough of this idle chatter—let's get back to our desks and finish that football pool."

For More Facts Write No. 286 on Information Card—Last Page



BCA DELIVERS NEW DESIGN DATA

for personal discussion on all ball bearing applications!

Whenever BCA submits engineering drawings and calculations to a customer for a new ball bearing application, they're delivered in person by a BCA engineer. He can discuss the problem and our suggested solution, explaining how and why this particular design is best for the job to be done. Only in this way can you get the personal consultation essential to solving many bearings problems.

When new ball bearing applications or design changes are required, BCA engineers to the precise degree that operating conditions require. Bearings *must not* be under-engineered, at a risk of bearing failure: neither should they be over-engineered, at unnecessary extra cost. These are but a few of the factors which must be considered in bearing design. This is why the BCA personal approach offers a decided advantage to our customers.

Another important BCA "extra" is unusual flexibility in operation. Because we can eliminate red tape and wasted time, many of our customers have found we can even handle delivery or production emergencies in good order.

BCA also has available complete new research and engineering facilities and equipment. Included are special bearings testing machines which can duplicate many of the customers' actual operating conditions.

BCA makes ball bearings for OEM and replacement use, for almost every industry . . . construction, agriculture, automotive, machine tool. They're available in a complete range of sizes and types. For information or for technical assistance on bearings problems, contact Bearings Company of America, Division of Federal-Mogul-Bower Bearings, Inc., Lancaster, Pa.

BCA

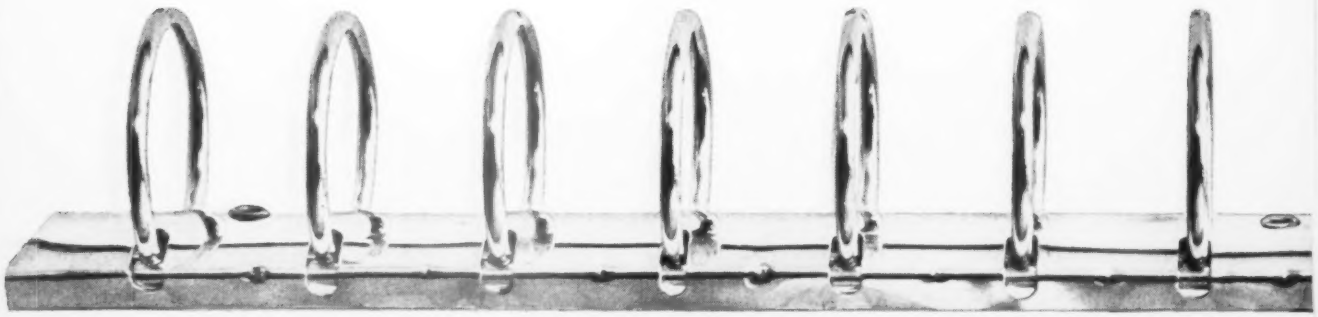
BEARINGS COMPANY OF AMERICA

ball bearings

DIVISION OF
FEDERAL-MOGUL-BOWER
BEARINGS, INC.

For More Facts Write No. 287 on Information Card—Last Page

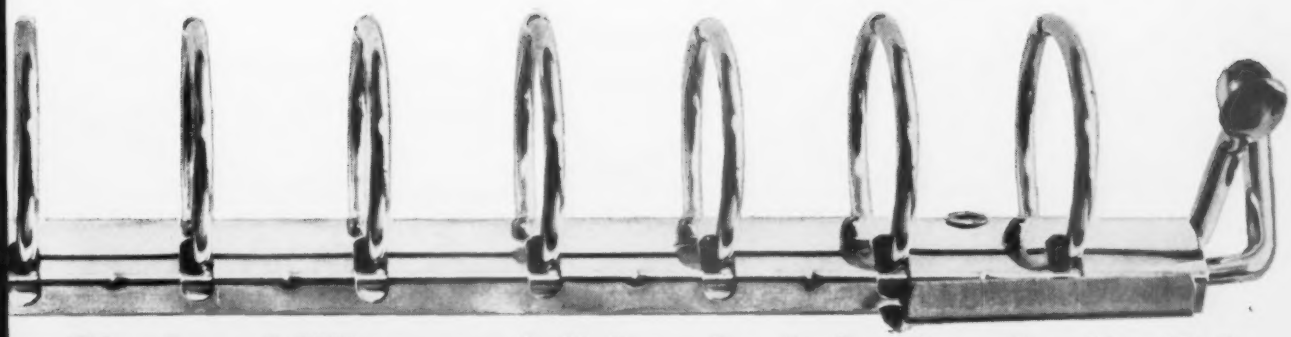
This mark tells you a product is made of modern, dependable Steel.



This is a new kind of ring binder. Below: the American



It opens, closes, and locks the rings, preventing spilled sheets. That's about all a ring binder does. And yet, coming up with the right wire for this binder was more than half a job. National Blank Book Company, Holyoke, Mass., asked our sales representative for an assist. He conferred with Charlie Canney—one of our top service metallurgists. **1.** Charlie met the people at National. **2.** He talked to their production people, came up with a profile of the wire they wanted. It had to have a uniform temper, the right temper for making the binder's snap-action ears, a clean, smooth surface for welding and plating, a temper which would vee-notch cleanly and still be rigid enough to stand distortion during production. **3.** Charlie took his problem back to our Worcester plant, talked it out with Clyde Westhaver, general foreman of cleaning, coating, heat treating; and Fred Brierly, product metallurgist. **4.** And then to the Metallograph—an instrument used in one of the many tests that determine the right properties. **5.** Charlie's report followed. **6.** Next, into limited production on the wire.



Steel and Wire specialists who helped make it click.



Wilfred Blades, quality control supervisor, and Francis Whalen, works metallurgist, kept close check on its condition during the initial draw. **7.** Before shipment, Arthur Weissinger and John Conrad, lab technicians, took stress-strain recordings **8.** The result: a ring binder that works just fine, and another satisfied customer. Call your American Steel and Wire salesman or nearest sales office the next time *you* need a metallurgical assist, or the best wire you can buy. American Steel and Wire, Rockefeller Building, Cleveland 13, Ohio.

Innovators in Wire

USS TRADEMARK

American Steel and Wire Division of United States Steel

Employment Service

BUYER

Salary Range $103.50-$124.25 weekly. Open to male resident citizens of the United States who possess the minimum qualifications. For further details write to Personnel Director, Municipal Building, Hartford, Conn.

Experience: Director of purchases with top level career, over 15 years diversified procurement with large and medium manufacturers electronic apparatus, precision equipment, etc. Full scope defense, sub-contracts, R&D, CPFF, T&M. Prefer connection company having substantial percentage of non-defense business. Salary $15,000 upward.
Education: College graduate, Bus. Admin. accounting major.
Will relocate.
Write: Box 105.

Experience: Plant supervision, production and inventory control, receiving, shipping, traffic. Procurement of raw materials, product components, all MRO items. Director of purchases 6 yrs. requiring multi-million dollar expenditures plus defense contract requirements. Age 48.
Education: B.S. degree from major university.
Will relocate.
Write: Box 110.

Experience: Eleven years' experience of purchasing in the electronics, electro-mechanical field, including production control, inventory, expediting and office management. Good purchasing executive experience. Special training in latest purchasing principles and policies of procurement. Record of cost savings proven with value analysis program.
Education: 4 yrs. machine design & drafting (nights) 1 yr. college-purchasing and production control 4 yrs. extension courses in purchasing. Member —N.A.P.A. (equiv.) A. A. Degree.
Will relocate.
Write: Box 112

Experience: Five years automotive purchasing consisting of buying, administrative, systems and procedures, and planning experience. Age—30.
Education: B. Sc. in Bus. Admin.—1953. Masters in Bus. Admin—1961.
Will relocate.
Write: Box 115

PURCHASING MANAGER

Manufacturer of commercial refrigeration equipment in middle Atlantic state needs a combination of engineering and purchasing experience. Emphasis is on purchasing from the engineering point of view. Engineering degree and experience in value analysis are highly desirable. Starting salary to $13,500

Please submit complete resume including present salary to Harper Associates, 180 Broadway, N. Y. 38, N. Y.

Experience: 14 years heavy construction, power generation, nuclear and electronics. Familiar AEC, NRB, ASPR regulations. Organized departments. Established procedures, systems and policy.
Education: Special courses.
Will relocate.
Write: Box 106.

Experience: 10 years as P.A. of a multi-plant manufacturer and distributor of food products, purchasing raw materials and packaging materials. Responsible for all production planning and scheduling, also for inventory control of both raw materials and finished goods. Have operated on the policy making level.
Education: B.A. in Economics from the University of Pennsylvania, 1948. Graduate Courses in buying and merchandising at N. Y. U.
Will relocate.
New York—New Jersey Metropolitan area.
Write: Box 116

HOW TO APPLY

There is no charge for this service, which is available both to purchasing personnel seeking employment and to employers requiring replacements or additions to their purchasing depts. Please specify the form you want—employer or applicant. Address all correspondence (requests for forms, and answers to advertisements) to Box No., Employment Service, Purchasing Magazine, 205 East 42nd St., New York 16.

PURCHASING AGENT

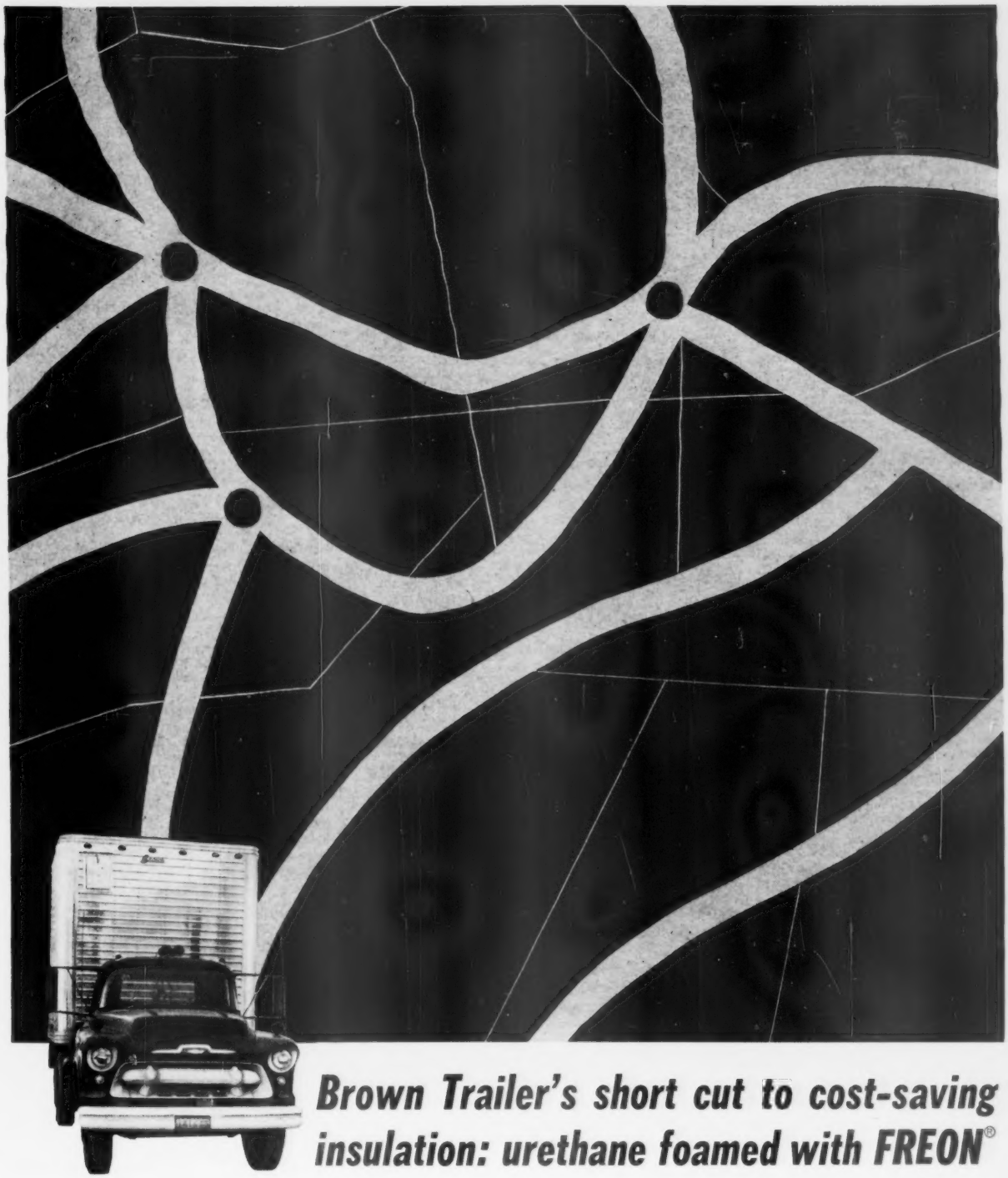
New England manufacturer of wire and cable, 1200 employees, has key opening for purchasing agent with at least five years experience in purchasing in the wire and cable field. Must be capable of organizing the purchasing department. Experience in scrap material disposal essential. Must know government specifications.

Please submit complete resume including present salary to Harper Associates, 180 Broadway, New York, N. Y.

Experience: Ten years purchasing for chemical and atomic energy industries. Diversified commodities; process equipment, electrical and mechanical components, steel products, carbide cutting tools, MRO etc. Knowledge of purchasing systems and procedures, value analysis, government purchasing regulations, expediting, etc. Experience both in plant construction and production buying.
Education: B.B.A. marketing, M.B.A. transportation and traffic management.
Will relocate.
Write: Box 104.

Experience: Four years—purchasing raw materials, steel; copper, aluminum & other metals; plastic resins and compounds, chemicals, fiberglass, rayon, printing materials; industrial and retail packaging, as well as many other industrial plant materials. Cost and production analysis. Methods and procedures.
Education: B.A.—M.B.A. Industrial Management Marketing.
Will relocate. Prefer greater New York area.
Write: Box 121

Experience: Purchasing agent/traffic manager for small, two-plant New England chemical manufacturer. Buy $4,000,000 annually of plant and lab chemicals, factory, maintenance & office supplies. Administer inventory control and invoice processing system. Negotiate annual contracts. 3 years purchasing agent; 3 years marketing work.
Education: Boston College, '55. B.S. marketing, special evening courses in purchasing, inventory control, rubber & plastic technology.
Will relocate.
Write: Box 119



Brown Trailer's short cut to cost-saving insulation: urethane foamed with FREON®

Protecting perishable foods for long distances can be expensive. But Brown Trailer Division of Clark Equipment Co. has chopped costs down to size. "Urethane blown with 'Freon' has proved to be an efficient insulating material," claims C. R. DeVane, Research and Development Manager at Brown. "The process results in more than a 50% reduction in heat-conducting ability as compared with insulating materials more commonly used. The gas trapped in tiny urethane cells produces a K-factor of .14!"

Brown trailers save on maintenance, too. The rigid urethane bonds tightly to the surrounding material, adding structural strength, preventing water penetration, corrosion and unpleasant odors. If a fork-lift truck bangs a hole in the wall, repairs are easy. A block of urethane can be cut to fit closely, then bonded securely with foaming mixture.

Try urethanes foamed with Du Pont "Freon" and "Hylene" isocyanates in your application. Get full technical assistance by writing to: Du Pont Company, "Freon" Products Div., N-2420PC, Wilmington 98, Del.

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Advertisers In This Issue

A

Acushnet Process Company 164
Allegheny Ludlum Steel Corp. 24
Aluminum Company of America 197, 198
American Hard Rubber Company 169
American Steel & Wire Co. 202, 203
American Telephone & Telegraph Co. 139
Amforge Division 182
Amplex Division,
Chrysler Corporation 54, 55
Anaconda American Brass Company 49
Armstrong Cork Company 32
Avery Label Company, A Division of Avery Adhesive Products, Inc. 175

B

Bearings Company of America, Division of Federal Mogul Bower Bearings, Inc. 201
Bemis Bro. Bag Company 179
Bethlehem Steel Co. 101
Bound Brook Bearing Corporation of America 119
Bower Roller Bearings, Division of Federal Mogul Bower Bearings, Inc. 66
Bulldog Electric Products, Division of I-T-E Circuit Breaker Co. 26
Bussmann Mfg. Co. 38, 39

C

Carborundum Company, The, Multi Division 34
Carlson, G. O., Inc. 22
Century Electric Company 1
Champion Lamp Works 36, 37
Champion Papers, Inc. 51, 52, 109, 110, 135, 136, 165, 166
Chicago Lock Company 132
Chisholm Moore Hoist, Division of Columbus McKinnon Chain Corp. 100
Chrysler Corp., Amplex Division 54, 55
Clark Equipment Co., Industrial Truck Div. 158, 159
Cleveland Container Co., The 48
Colorado Fuel & Iron Corp. 194, 195
Columbia-Geneva Steel Div. 60, 61, 133, 202, 203
Columbia Southern Chemicals (refer to Pittsburgh Plate Glass Company, Chemical Div.) 102, 103
Conover-Mast Purchasing Directory 172
Continental Diamond Fibre Corp. 193
Cornell Manufacturing Co. 42

D

Danielson Mfg. Co. 168
Darnell Corp., Ltd. 116
Detroit Stamping Company 118
Dow Chemical Co., The 28
Dow Chemical Company, The, (Chemicals Bus. Mgr.) 111
DuPont de Nemours & Co., Inc., E. I. Fabrics Div. Elastomers 128
"Freon" Products Division 205
Durkee-Atwood Co., Industrial Div. 30

E

Eagle Manufacturing Co. 124
Eagle Pencil Company 140, 141
Elwell-Parker Electric Company, The 97
Ex-Cell-O Corporation 14, 16, 18

F

Fairfield Manufacturing Co., Inc. 98
Federal Tool & Mfg. Co. 174
Flexonics Corporation 149
Freund Can Company 114

G

Gates Rubber Company 8
Gaylord Container Division, Crown Zellerbach Corp. 131
General Aniline & Film Corporation, Ozalid Division 145
General Electric Co.
Direct Current Motor and Generator Dept. 44
Metallurgical Prod. Dept. 184, 185
General Pencil Co. 144
Gering Plastics, Inc., Division of Studebaker 186
Goodrich Industrial Products Company, B. F. 6
Goodyear Tire & Rubber Co., Industrial Prod. 20, 21
Graphic Controls Corporation 123
Graybar Electric Co., Inc. 4
Great Lakes Steel Corp., National Steel Corp. 2, 3
Grip-Nut Company 200

H

Hardinge Brothers, Inc. 25
Hoover Ball & Bearing Company 53
Hubbell, Harvey, Inc., Machine Screw Dept. 108
Hussey & Company, C. G. 41

I

Illinois Tool Works—Shakeproof Div. 161
Industrial Retaining Ring Co. 45
Ingersoll Rand Company 57
Inland Container Corp. 167
Inland Steel Company 180, 181
International Paper Co., Packaging Division 115

J

Jeffrey Manufacturing Company 157
Jenkins Bros. .....4th Cover
Johns Manville, Dutch Brand Division 132
Johnson & Hoffman 116
Joliet Wrought Washer Co. 190
Jones & Laughlin Steel Corporation, Stainless & Strip Division 33

K

Kaydon Engineering Corporation 10
Kennametal Inc. 155
Keystone Steel & Wire Company 171
Kimberly-Clark Corporation 162, 163

L

Leece-Neville Company, The 196
Ludlow-Saylor Wire Cloth Company 130
Lunkenheimer Company 118
Lyon Metal Products, Inc. 99

M

Magnetic Metals Co. 191
McGill Manufacturing Co., Inc. 108
Midwest Piping Div. of Crane Co. 117
Minnesota Mining & Mfg. Co. 199
Minnesota Rubber Co. 104
Mobil Oil Company 112, 113
Moore Business Forms 143
Mueller Brass Company 68

N

National Carbon Company, Division of Union Carbide Corp. 187, 188
National Cash Register Co., The 142
National Lead Company, Doehler-Jarvis Division 64
National Tube Division 60, 61, 133
Newark Wire Cloth Company 59
New Departure Division of General Motors Corp. .....2nd Cover
New York Twist Drill Co., Inc. 192
Northern Natural Gas Company 192

O

Oakite Products, Inc. 70
Olin Mathieson Chemical Corp. 176, 177

P

Peterson Steels, Inc. 65
Pittsburgh Plate Glass Company, Chemical Division 102, 103
Powell, William, Company, The 62, 63
Protectoseal Company, The 192

Q

Quinn-Berry Corp. 47

R

Republic Rubber Division 174
Richardson Company, The 173
Richline Company, Inc. 114
Riegel Paper orporation 58
Rohm & Haas Company 105
Rome Cable Division of Alcoa 127
Ryerson, Joseph T., & Son, Inc. 12

S

Sandvik Steel, Inc. 156
Screw & Bolt Corp. of America 189
Shell Oil Company 183
Simonds Abrasive Company 151
Simonds Saw & Steel Co. 152, 153
SKF Industries, Inc. 46
Spaulding Fibre Co., Inc. 120, 121
Square D Company .....3rd Cover
Stackpole Carbon Co., Ceramagnet Division 178
Standard Register Co., The 138
Steelcase, Inc. 137
Superior Steel Division, Copperweld Steel Company 125

T

Taylor, S. G., Chain Co. 168
Tennessee Coal & Iron Division 60, 61, 133, 202, 203
Tomkins-Johnson Company 43

U

United Air Lines, Air Freight Div. 56
U. S. Graphite Company 94, 95
United States Steel Corporation (UCO) 60, 61, 133
United States Steel Export Co. 60, 61, 133, 202, 203
United States Steel Supply Division of United States Steel 60, 61, 133
Utica Drop Forge & Tool Div. of Kelsey-Hayes Co. 126

W

Waldes Kohinoor, Inc. 129
Weatherhead Company, The 122, 123
Westinghouse Electric Corp.-Motor & Gearing 106, 107
Worthington Corp. 35
Wrought Washer Mfg. Co. 160

Y

Youngstown Sheet & Tube Co. 146, 147

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November 6, 1961 (Expires 1-2-62)

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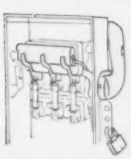


• The men who pull the switches will tell you what can happen when a switch, ***believed*** to be open —***isn't***. A lot of things can happen—and every one of them is bad. Personnel safety is in jeopardy. Motors can single-phase. Machinery and work can be damaged. Down-time can skyrocket.

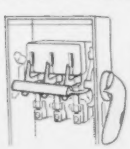
Doesn't it make sense to insist on **V**isible **B**lade construction which gives you a road block against any of those possibilities? Doesn't it make equally good sense to insist on the safety switch which gives you that construction—plus a lot of other performance advantages? Evidently it does, because *Square D switches have never been out of first place in more than 50 years!*

They cost no more... why settle for less?

Extra Safety with Square D's Handle Design



WHEN IT'S **UP**
IT'S **ON!**



WHEN IT'S **DOWN**
IT'S **OFF!**

Handle is integral part of switch, not cover. When door is opened, handle remains attached to switch. Eliminates hazard of false handle indication or defeat of padlock provision. When it's padlocked, it's locked!

SQUARE D COMPANY

wherever electricity is distributed and controlled

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JENKINS FIG. 106-A BRONZE GLOBE 150 LBS. STEAM . . . 300 LBS. O.W.G.

in Disc Equipped Bronze Valves

LOOK **at that Wheel** — Tough malleable iron. Design unequalled for cool, sure grip.

LOOK **at the Index Plate** — Has Fig. No. etched in green background. Held by wheel nut which is secured by rolled-over spindle end.

LOOK **at that Spindle** — Made of high tensile bronze. See how much heavier it is . . . how many more deeply cut threads engage bonnet. And, the crowned head that reduces friction on disc holder. Sure, it costs more to make a spindle this way. But it reduces wear, preserves packing, means easier operation.

LOOK **at the Packing Nut and Gland**—Note the heavy and deep bronze hex. And, that bronze gland designed to compress packing toward spindle.

LOOK **at that Packing Box** — Its depth equals 1½ times spindle diameter. More packing space means less repacking. An asbestos, lubricated and graphited packing is used.

LOOK **at that Bonnet** — One-piece, screw-over design with big hex surfaces is easy to remove. Take an extra look at the bevel joint between bonnet and body, serving as an internal brace against the crushing effect of the bonnet assembly. Millions of Fig. 106-A in use for years prove this unique design licks distortion and springing.

LOOK **at the Disc Holder** — It's the Slip-on Stay-on type originated by Jenkins. Correct protective depth prevents flaking or cracking of disc.

LOOK **at the Disc** — Easily renewed without removing valve from line. Made of compositions to suit various services . . . and **made by Jenkins,** the only maker of both valves and discs.

LOOK **at that Body** — Just compare wall thickness of this high tensile bronze body with any other valve. The factor of safety is many times higher than rating requires. See the curved diaphragm to protect seat from distortion by pipe strain. Note that the raised seat is higher to permit more reseating operations . . . and wider, so it won't cut into disc. Pipe threads are full length and clean cut.

LOOK **at this . . . for Throttling**



—Just replace the standard disc nut with this Throttling Nut and a Fig. 106-A becomes well-suited to throttling service. This unique nut reduces the effects of wire drawing and its long legs restrict flow for accurate control. Many plants take advantage of this versatile valve to reduce valve and parts inventory.

THE FIRST renewable composition disc valve was a Jenkins Valve, originated nearly a century ago. Compare today's Fig. 106-A Bronze Globe with any other. See why so many valve users agree that a *Jenkins* is still the FIRST for top value. For descriptive folder No. 189-B on the full line of Jenkins Bronze Globe, Angle and Check Valves write to Jenkins Bros., 100 Park Avenue, New York 17.

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LOOK FOR THE JENKINS DIAMOND

VALVES

JENKINS SINCE 1864 Jenkins Bros.

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